

TRANSIT SYSTEM IMPROVEMENTS

A variety of transit system improvements are included in the 2015 – 2040 RTP. This section highlights some of the objectives met by the RTP, explains the modes included in the RTP, identifies the projects, and maps them. **Figure 7-1** highlights the objectives used.

Transit Project Modes

Various forms of transit are planned in the 2015 – 2040 RTP. For planning purposes, each type of transit has a specific definition, package of amenities, and costs. However, in practice, both rail and Bus Rapid Transit offer a broad continuum of characteristics and each individual project will be tailored to fit the individual circumstances. This section outlines broad definitions

FIGURE 7 - 1 **WASATCH FRONT URBAN AREA**
TRANSIT PLAN OBJECTIVES FOR THE 2015 - 2040 RTP

First Phase Objectives

Preserve transit rights-of-way for future use

Substantially expand days and hours of service on existing high use local bus and rail service. This will, among other things, improve the ability of transit to support transit oriented development taking place along the existing rail lines.

Increase accessibility of existing major transit service adjacent neighborhoods

Double track, slightly extend, and increase frequency on the existing S-Line

Improve the travel time and safety of the FrontRunner in keeping with Federal statute.

Improve existing high use transit connections linking the FrontRunner, central business districts and universities in Ogden and Ogden. (Projects 10 and 22) Further extend the Salt Lake Central/Medical Center Enhanced Bus/Bus Rapid Transit to Reserarch Park, Foothill Drive, and East Millcreek as a joint project with UDOT.

Connect South Davis to Downtown Salt Lake via Bus Rapid Transit

Support the development of the Mountain View Corridor as a Joint highway/transit corridor in compliance with the Mountain View USDOT Record of Decision.

Second and Third Phase Objectives

Expand upon the existing and Phase 1 transit network where appropriate to create a network of high quality transit corridors quality; including convenient hours of operations, frequency of service, reliability, competitive travel time, comfort, and aesthetic urban design.

Minimize congestion delay upon the transit system through the extensive use of Traffic Signal Priority, short transit lanes bypassing stopped traffic at traffic signals, and/or continuous transit lanes as warranted and feasible.

Invest in transit corridors with proven markets and further connect regional activity centers in support of the Wasatch Choice for 2040.

Provide for maximum transit system interoperability, avoiding forced transfers.

of each transit technology type. The specific amenities that were assumed to be part of the various forms of transit technologies are listed in the chapter titled [Assess Financial Considerations](#).

Streetcar

- ¼ mile station spacing
- Dedicated platforms and shelters, real-time vehicle arrival notification, ticket vending machines, potential for park-and-ride lots near key stations
- Electric rail based vehicles
- 15 minute headways, 18 hours a day
- Potential traffic signal priority and/or queue jumping lanes at major traffic signals
- \$30-50 million cost per mile, \$45 million assumed

Enhanced Bus (BRTI)

- 1 mile station spacing
- Dedicated platforms and shelters, real-time vehicle arrival notification, ticket vending machines, potential for park-and-ride lots near key stations
- Branded Bus or Specialized Vehicles
- 15 minute headways, 18 hours a day
- Potential traffic signal priority and/or queue jumping lanes at major traffic signals
- \$1-2 million cost per mile, \$2 million assumed

Bus Rapid Transit (BRTII)

- 1 mile station spacing
- Dedicated platforms and shelters, real-time vehicle arrival notification, ticket vending machines, potential for park-and-ride lots near key stations
- Specialized Vehicles
- 15 minute headways, 18 hours a day
- Potential for roadway improvements including exclusive-shared HOV lanes or peak hour shoulder lanes on up to 75% of the designated alignment. Also, traffic signal prioritization, potential queue jumping lane at major traffic signals
- \$7-15 million cost per mile, \$13 million assumed

Light Rail Transit (LRT)

- 1 mile station spacing
- Dedicated platforms and shelters, real-time vehicle arrival notification, ticket vending machines, park-and-ride at most stations
- Electric rail based vehicles
- 10-15 minute headways
- Traffic Signal Priority and exclusive lanes with potential gated crossings
- \$40-70 million cost per mile, \$60 million assumed

Commuter Rail

- 5 mile station spacing

- Dedicated platforms and shelters, real-time vehicle arrival notification, ticket vending machines, park-and-ride at most stations
- Diesel rail vehicles which can operate with freight rail trains
- 20-60 minute headways
- Exclusive lanes or freight shared track with gated crossings
- \$10-30 million cost per mile, \$26 million assumed

The 2015- 2040 RTP recommends a variety of transit services providing different types of travel choices in much the same way as freeways, arterials, collectors, and local streets serve different types of travel choices for the automobile traveler. However, more critical to the user of transit than for the automobile traveler are efficient transitions from one system to another. Smooth transitions are facilitated in transit through intermodal centers, transit hubs, and intercept park-and-ride lots. When fully implemented, transit riders will be able to identify specific facilities where they can make quick and easy transfers from one type of transit mode, such as commuter rail, to another. Transit hubs, intermodal centers, and park-and-ride lots allow for greater flexibility of destination and increased convenience to system patrons. The RTP recommends the construction of transit hubs, transfer centers, and regional park-and-rides facilities not associated with a major investment line.

Transit Hubs

Transit hubs are specifically designed to connect regional and inter-regional transit services with passengers originating from areas with lower trip densities but with collector and local transit services. Transit hubs



Salt Lake City Intermodal Hub

provide passengers with scheduled transfers to express or limited stop transit modes not otherwise directly available to them. Unlike park-and-ride lots or other

transit connections, local buses serving each hub would be scheduled to depart when all of the scheduled buses have arrived. Logical places for transit hubs are commuter rail stations, light rail stations, large employment centers, and major commercial nodes

Transit Park-And-Ride System

A number of park-and-ride lots are currently in use throughout the Wasatch Front Region. The Utah Transit Authority's current park-and-ride lots allow transit riders to park their automobiles and commute to their destination. Nearly all of the [FrontRunner](#) and [TRAX](#) stations are provided with park-and-ride facilities and UTA has shared use agreements with several lot owners including the Church of Jesus Christ of Latter-day Saints which owns many lots not in use during the work week. Additional park-and-ride lots, will need to be identified, contracted for, or constructed as opportunity arises. Most park-and-ride lots are generally not regionally significant and need not be identified in the Regional Transportation Plan. However, additional park-and-ride lots should be sought out along major investment corridors and expanded as needed. This is especially true in outlying areas where densities do not justify regular transit route coverage. Such locations include the outer fringes of

the developing urban area and smaller, distant towns. General locations for three park-and-ride lots have been identified in the 2015- 2040 RTP.

Typical Cross Sections

A typical cross section for transit facilities with exclusive rights-of-way would be about 30 feet of right-of-way width between stations flaring out to about 44 feet of right-of-way width at stations. Station structures would be 8 feet in width. An additional 11-foot wide lane to the curb side of each station would allow for both through and right hand turning vehicular traffic flow. This type of transit station and lane configuration would accommodate a BRT, light-rail line or a streetcar line. For a BRTII line, this width of right-of-way would accommodate two 11.5-foot transit lanes and allow 8 feet for curbs, gutter and landscaping as shown in [Figures 7-2 and 7-3](#). For a streetcar or light-rail transit line, about 30 feet of right-of-way width would accommodate two rail lanes, curbs and space for the electrical catenary poles with two feet to spare as shown in [Figure 7-4](#).

FIGURE 7 - 2 **TYPICAL TRANSIT FACILITY CONFIGURATION**

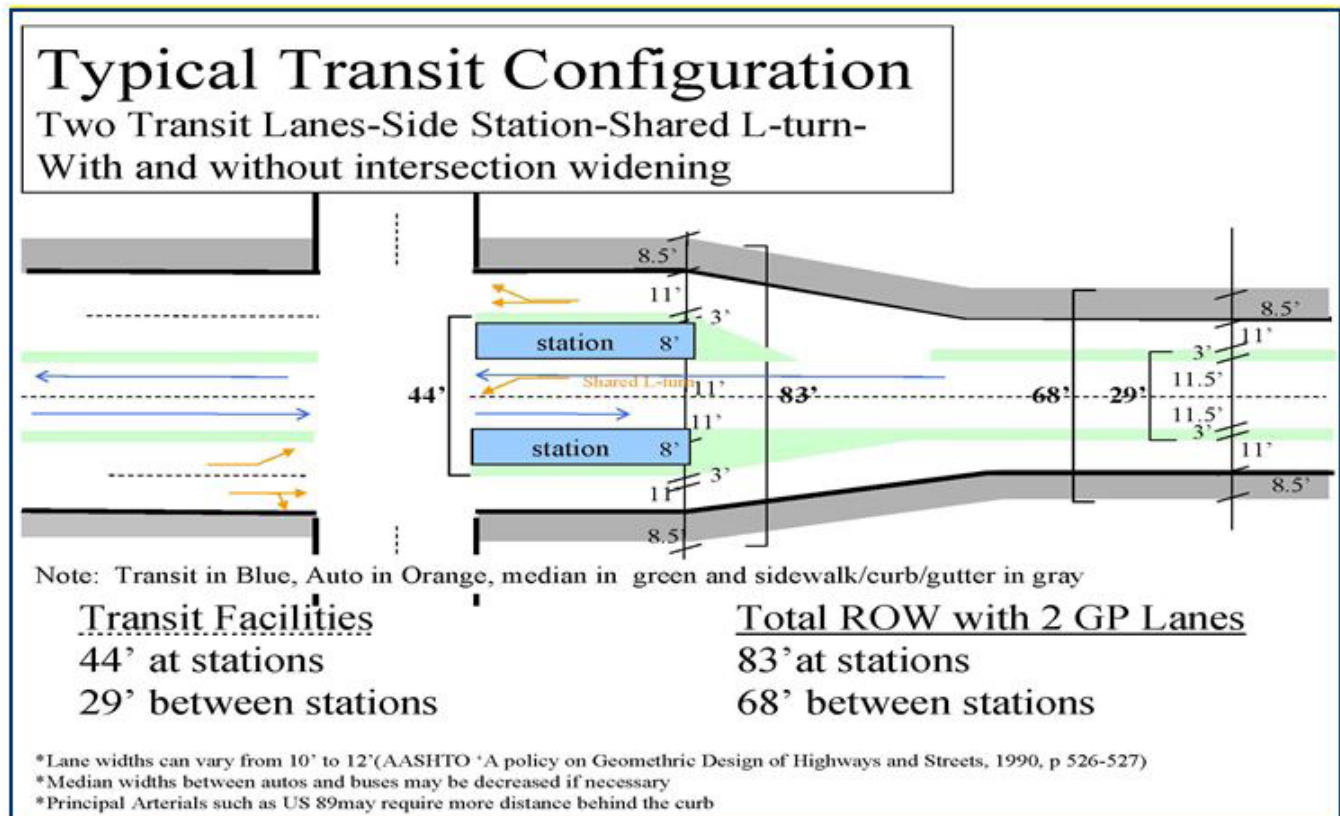


FIGURE 7 - 3 **TYPICAL BUS RAPID TRANSIT FACILITY**

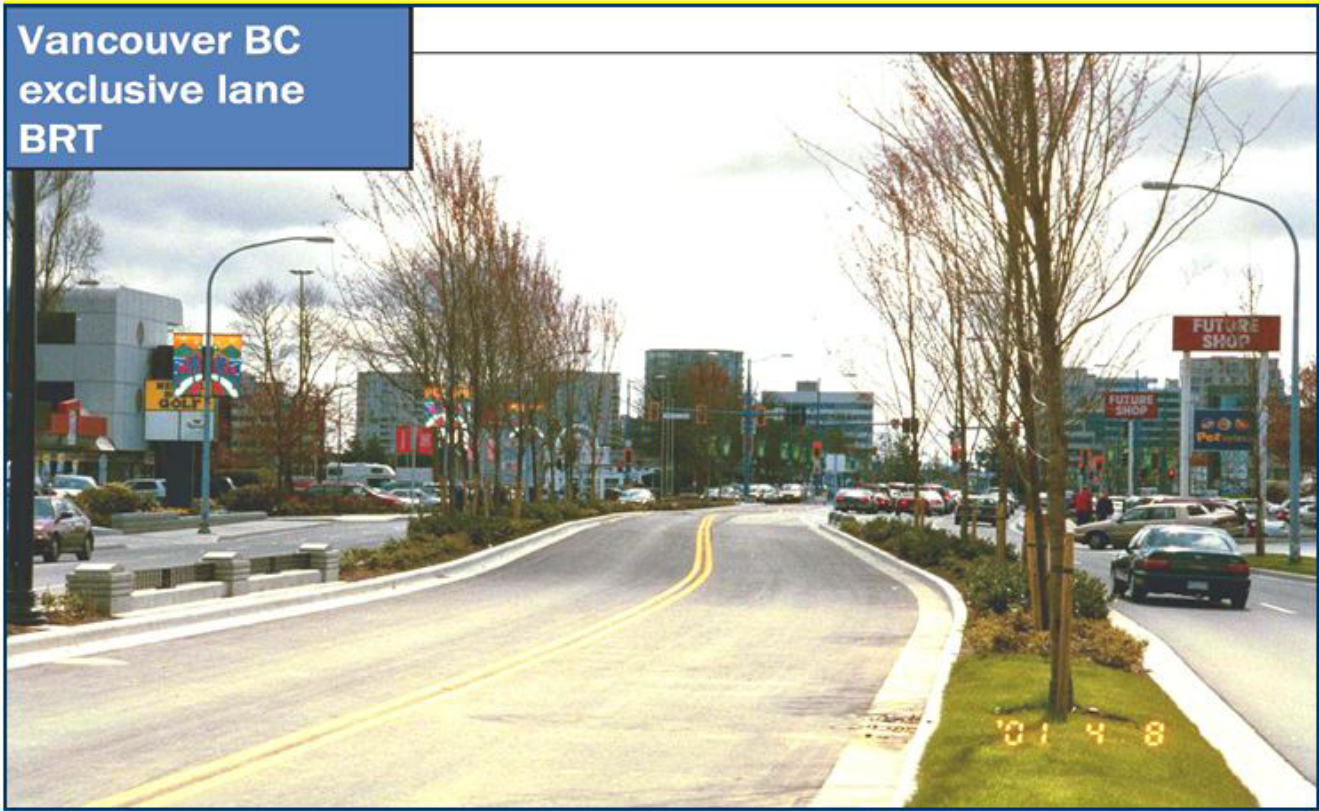
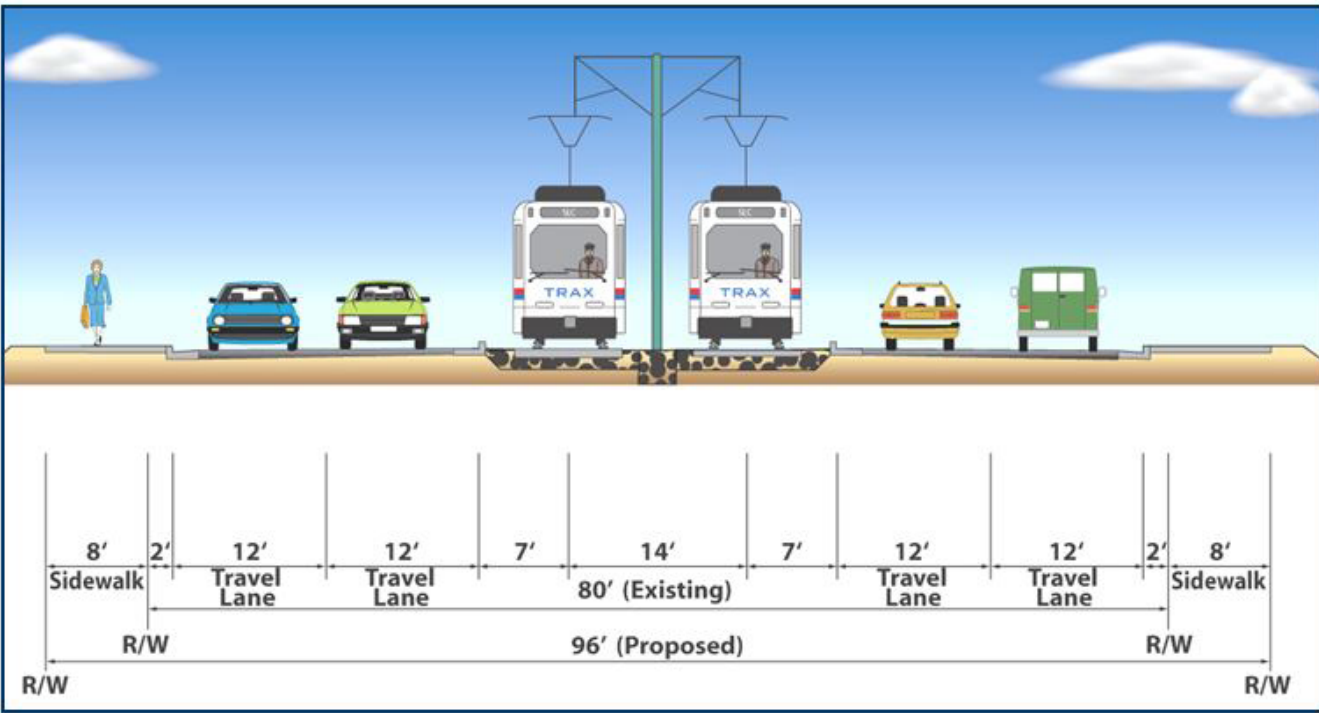


FIGURE 7 - 4 **TYPICAL MINOR ARTERIAL WITH IN-STREET LIGHT RAIL CROSS SECTION**



Transit Projects List and Maps

The 2015- 2040 RTP identifies transit improvement projects that increase service to meet exiting and new transit markets. These projects are provided in both list form in [Table 7-4](#) and in map form in [Maps 7-7 through 7-14](#).

The 2015 – 2040 RTP Transit Projects are separated into three proposed implementation time frames based upon need and available funding. Phase 1 is the time period between 2015 and 2024. Phase 2 is the time period between 2025 and 2034. Phase 3 is 2035 through 2040. The new revenue assumed by the RTP is calculated to be sufficient to build and operate these projects based on current cost estimates starting in each of these phases through 2040. Recognizing that a financially constrained plan will not address all new capacity needs, the federal reauthorization act, entitled [MAP-21](#), allows for illustrative or non-funded projects and facilities to be identified in regional transportation plan documents.

The “2040 RTP Transit Project List” is shown as [Table](#)

[7-5](#). The transit project header provides the name of the transit line and the general corridor the line is to serve highlighting major milestones along the project line. Underneath the header is information about each segment of the placeholder project alignment divided by color into what was funded, what was determined to be needed, and what was in the previous plan. Project costs are provided in both uninflated, 2015 value dollars, and in year of expenditure dollars to better inform the reader. Due to the limited space available many abbreviations are used. A section of notes at the bottom of the last page of [Table 7-5](#) contains an explanation of the abbreviations used and other pertinent details.

The phasing, transit technology, and placeholder alignment of each project is portrayed in [Maps 7-7 through 7-14](#). [Map 7-7 and Map 7-8](#) shows all 2015-2040 RTP transit projects anticipated to be implemented colored by project type, with unfunded projects in yellow. [Maps 7-9 through 7-14](#) show those transit projects to be implemented in each of the three phases of the 2015 – 2040 RTP.

TABLE 7 - 5 2015-2040 RTP TRANSIT PROJECT LIST

Corridor Name – 2040 Funded Mode (s)												
Corridor Description												
2015-2040 Funded Project Descriptions							2015-2040 Needed Project Descriptions ₉				2011-2040 RTP Project Descriptions ₉	
Phase ₁	Mode ₂	Project Extents	Capital Costs (millions 2015\$) ₃	Capital Costs (millions YOES) ₄	Annual Operations Costs (millions 2015\$) ₅	Operations Costs 2015 thru 2040 (millions YOES) ₆	Need Phase ₁	Need Mode ₂	Capital Costs (millions 2015\$) ₃	Annual Operations Costs (millions 2015\$) ₅	2011 RTP Phase ₇	2011 RTP Mode ₂
INTERCOUNTY PROJECTS												
1A-1B. Pleasant View – Brigham City Corridor -- Corridor Preservation & Mode Undetermined												
<i>Pleasant View FrontRunner Station - Brigham City</i>												
1/U	CP/MU	Pleasant View Frontrunner Station to Box Elder County Line	\$17	\$21	\$01	N/A	1	MU/BRT	\$188	\$4.9	3	CP
1/U	CP/MU	Box Elder County Line to Forest Street/900 W					1	MU/BRT			N/A	CP
2. West Weber - West Davis Corridor -- Enhanced Bus & BRT												
<i>Ogden Intermodal Center - Ogden CBD - Newgate Mall - Riverdale - Ogden Airport - Roy FrontRunner Station - West Haven - Clinton - West Point - Syracuse - Clearfield FrontRunner Station - Hill AFB South Gate Transit Hub - Layton Hills - Layton FrontRunner Station</i>												
3	EB	Ogden Hub to 27 th St./Washington Blvd.	\$31	\$36	\$8.3	\$56.7	2	EB	\$99	\$8.3	2	EB
3	BRT	27 th St./Washington Blvd. to 30 th St./Washington Blvd.					2	BRT			2	BRT
3	BRT	30 th St./Washington Blvd. to 40 th St./Riverdale Rd.					2	BRT			3	BRT
3	EB	40 th St./Riverdale Rd. to 4400 S/Bamberger Rail Line					2	EB			3	BRT
3	EB	4400 S/Bamberger Rail Line to 3500 W/Midland Dr.					2	EB			3	BRT
3	EB	3500 W/Midland Dr. to Clearfield FrontRunner Station					2	EB			2	EB
3	EB	Clearfield Front Runner Station to Hill Field Rd./SR-126					2	EB			2	EB
3	BRT	Hill Field Rd./SR-126 to Layton FrontRunner Station					2	EB			3	BRT

3aA-3aB. North Ogden - Salt Lake Corridor (N. Ogden-Bountiful) – Corridor Preservation, BRT & Enhanced Bus

North Ogden - Washington Blvd - Ogden Intermodal Center - Washington Blvd - Newgate Mall - Riverdale - Ogden Airport - Falcon Hill Transitway - Hill South Gate - Clearfield FrontRunner Station - Layton Main Street - Layton FrontRunner Station - Kaysville - Fruit Heights - Farmington Station - Downtown Farmington - Centerville - Bountiful Main Street

2	EB	2700 N/Washington Blvd. to 12 th St./Washington Blvd.					1	EB			2	EB
2	EB	12 th St./Washington Blvd. to Ogden Hub					1	EB			2	BRT
2	EB	Ogden Hub to 27 th St./Washington Blvd.					1	EB			1	EB
2	BRT	27 th St./Washington Blvd. to 40 th St./Riverdale Rd.					1	BRT			1	BRT
1/2	CP/BRT	40 th St./Riverdale Rd. to 4400 S/Bamberger Rail Line	\$392	\$573	\$13.2	\$155.1	2	BRT	\$392	\$13.2	2	EB
1/2	CP/BRT	4400 S/Bamberger Rail Line to HAFB West Gate					2	BRT			2	BRT
2	BRT	HAFB West Gate to Clearfield FrontRunner Station					2	BRT			1	BRT
2	BRT	Clearfield FrontRunner Station to Farmington FrontRunner					1	BRT			3	BRT
2	EB	Farmington FrontRunner Station to 500 S/Main St. (Bountiful)					1	EB			3	EB
2	EB	500 S/Main St. (Bountiful) to Woods Cross FrontRunner Station					1	EB			3	EB

3b. North Ogden - Salt Lake Corridor (Davis-SLC Community Connector) -- BRT & Enhanced Bus

Bountiful Main Street - Woods Cross - North Salt Lake - 400 West SLC - 200 South Transit Center

1	EB	Woods Cross FrontRunner Station to 500 S/Main Street. (Bountiful)					1	EB			N/A	N/A
1	EB	500 S/Main St. to US-89/200 West (Bountiful)					1	EB			2	BRT
1	BRT	US-89/200 West to Eagle Ridge Dr.	\$75	\$90	\$3.3	\$84.1	1	BRT	\$158	\$3.3	1	BRT
1	BRT	US-89/Eagle Ridge Dr. (Bountiful) to Davis/Salt Lake County Line					1	BRT			1	BRT
1	BRT	Davis/Salt Lake County Line to US 89/400 W					1	BRT			2	BRT
1	EB	US 89/400 W to 200 S/400 W					1	EB			2	EB
1	EB	200 S/400 W to 200 S Transit Center					1	EB			3	EB

4A-4F. Six FrontRunner Park and Ride Lot Expansions

Existing Ogden, Clearfield, Farmington, Woods Cross, Salt Lake Central, and Murray Central Station areas

U	P&R	Existing Ogden, Clearfield, Farmington, Salt Lake Central, Murray Central, and Woods Cross Station areas	U	U	U	U	3	N/A	\$5	\$0	N/A	N/A
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5. FrontRunner Line Upgrades

Select siding locations TBD on Ogden to Utah County Segment

1	LU	3 miles of siding in the Bluffdale/Draper area and Positive Train Control	\$47	\$51	\$0	\$0	3	LU	\$47	\$0	N/A	N/A
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6. North Redwood (Davis County) Corridor -- Enhanced Bus & BRT

Lakeview Hospital - Bountiful - Woods Cross FrontRunner Station - West Bountiful - North Salt Lake - Rose Park - East Airport Transit Hub - Salt Lake Central - 200 South Transit Center

2	EB	500 S/Orchard Drive to Davis/Salt Lake County Line					2	EB			2	EB
2	EB	Davis/Salt Lake County Line to North Temple/1950 W TRAX Station					2	EB			3	EB
2	BRT	North Temple/1950 W TRAX Station to Redwood Road/I-80	\$27	\$40	\$5.6	\$73.1	2	BRT	\$71	\$5.6	3	EB
2	EB	Redwood Road/I-80 to 1-80/600 S Off Ramp					2	EB			3	EB
2	BRT	I-80/600 S Off Ramp to 600 W/200 S					2	BRT			3	EB
2	EB	600 W/200 S to 200 S Transit Center					2	EB			3	EB

7. Tooele Corridor - Enhanced Bus

Downtown Tooele - SR201 - 5600 West - Salt Lake International Center - Downtown Salt Lake City - 200 South Transit Center

U	EB	Vine Street to 200 S Transit Center	U	U	U	U	3	EB	\$143	\$12.9	N/A	N/A
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BOX ELDER COUNTY PROJECTS**8. US-91 Park and Ride**

I-15 near State Route 91

2	P&R	I-15 near State Route 91	\$3	\$4	\$0	\$0	1	PR	\$3	\$0	N/A	N/A
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9. Promontory Road Park and Ride I-15

I-15 near Promontory Road

2	P&R	I-15 near Promontory Road	\$3	\$4	\$0	\$0	2	PR	\$3	\$0	N/A	N/A
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WEBER COUNTY PROJECTS**10A-10B. Ogden - Pleasant View FrontRunner Corridor – Corridor Preservation & Line Upgrade**

Downtown Ogden - Pleasant View FrontRunner Station

1/U	CP/LU	Downtown Ogden to Pleasant View FrontRunner Station	\$7	\$7.9	N/A	N/A	2	LU	\$162	\$1.1	2	LU
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11. Ogden - Weber State University Corridor -- Mode Undetermined

Ogden Intermodal Center - Ogden CBD - 30th St. - Harrison - WSU Transitway - McKay Dee Hospital

1	MU/EB	Ogden Intermodal Hub to 27 th Street/Washington Blvd.					1	MU/EB			2	SC
1	MU/BRT	27 th Street/Washington Blvd. to 30 th Street/Washington Blvd.	\$41	\$47	\$1.7	\$48.1	1	MU/BRT	\$41	\$1.7	2	SC
1	MU/EB	30 th Street/Washington Blvd. to Harrison Blvd./Edvalson Street					1	MU/EB			2	SC
1	MU/BRT	Harrison Blvd./Edvalson Street to McKay-Dee Hospital					1	MU/BRT			2	SC

12. West Weber - WSU Corridor -- BRT & Enhanced Bus

W. Haven - Roy FrontRunner Station - Ogden Airport - Riverdale - Newgate Mall - 40th Street - McKay Dee Hospital - WSU Transitway

U	EB	3500 W/Midland Drive to 4400 S/Bamberger Rail Line	U	U	U	U	2	EB	N/A	N/A	N/A	N/A
U	BRT	4400 S/Bamberger Rail Line to Harrison Blvd./Edvalson Street					2	BRT			N/A	N/A

13. Mt. Ogden Maintenance Facility

Near 17th Street and Wall Avenue

2	FACL	Existing Mount Ogden UTA maintenance facility near 17 th and Wall Avenue	\$15	\$19	\$0	\$0	2	FAC	\$15	\$0	N/A	N/A
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14. Ogden Valley Park and Ride*SR-39 near Pineview Dam*

2	P&R	SR-39 near Pineview Dam	\$3	\$4	\$0	\$0	2	PR	\$3	\$0	1	P&R
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15. Ogden Canyon Mouth Park and Ride*12th Street and Harrison Boulevard*

2	P&R	Harrison Blvd. near 12 th Street	\$3	\$4	\$0	\$0	1	PR	\$3	\$0	N/A	N/A
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DAVIS COUNTY PROJECTS**16. Falcon Hill - Hill AFB West Transit Hub***Falcon Hill - Hill AFB West Gate*

2	HUB	Hill Air Force Base West Gate	\$3	\$4	\$0	\$0	2	HUB	\$3	\$0	1	HUB
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17. Layton Park and Ride Lot Expansion*Layton FrontRunner Station*

1	P&R	Existing Layton FrontRunner Station area	\$5	\$5	\$0	\$0	1	N/A	\$5	\$0	N/A	N/A
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SALT LAKE COUNTY SMALL AREA PROJECTS**18. Airport TRAX Reconfiguration***SLIA Terminals*

1	LU	SLIA Terminals	\$50	\$55	\$0	\$0	3	LU	\$50	\$0	N/A	N/A
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19. Airport High Speed Rail Station*SLIA*

U	HUB	Salt Lake International Airport	U	U	U	U	NA	N/A	\$3	\$0	N/A	N/A
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20. University of Utah Transit Hub*Fort Douglas*

1	HUB	Fort Douglas area	\$3	\$3	\$0	\$0	1	HUB	\$3	\$0	N/A	N/A
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21. 200 South Transit Hub*200 South between 650 W and 200 E*

2	HUB	200 S/200 E to 200 S/650 W	\$5	\$7	\$0	\$0	2	HUB	\$3	\$0	1	HUB
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22. Depot District/Central Garage Project*200 S 669 W*

1	FACL	200 S 669 W	\$50	\$55	\$0	\$0	1	FAC	\$50	\$0	N/A	N/A
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23. Interstate 80 / Downtown Bus Ramps*South and 600 South freeway on and off ramps*

2	RMP	500 South I-15 and I-80 On-Ramp	\$3	\$4	\$0	\$0	1	RMP	\$3	\$0	2	RMP
2	RMP	600 South I-15 and I-80 Off-Ramp	\$3	\$4	\$0	\$0	1	RMP	\$3	\$0	2	RMP

24. East Airport Transit Hub*1950 W/Redwood Rd*

2	HUB	Near 1950 W and North Temple	\$3	\$4	\$0	\$0	1	HUB	\$3	\$0	1	HUB
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25. Cottonwood Transit Hub*Highland Drive – Murray-Holladay Road*

3	HUB	Near Highland Drive and Murray-Holladay Road	\$3	\$4	\$0	N/A	N/A	N/A	\$3	\$0	N/A	N/A
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26. Fort Union Transit Hub*Union Park Avenue/Ft Union Blvd.*

2	HUB	Near Union Park Avenue and Fort Union Blvd.	\$3	\$4	\$0	\$0	2	HUB	\$3	\$0	1	HUB
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SALT LAKE COUNTY, NORTH-SOUTH PROJECTS**27A-27B. SLC - Foothill Drive - Wasatch Drive Corridor -- Enhanced Bus & BRT***Salt Lake Central - 200 S Transit Center - U of U - Medical Center - Mario Capecchi to Research Park Transitway - Research Park - Foothill Blvd. - Interstate 215 - Wasatch Blvd. - Cottonwood Corporate Center - Big Cottonwood Canyon Park and Ride*

1	EB	Salt Lake Central to 200 S/1300 E	\$96	\$115	\$3.7	\$94.0	1	EB	\$96	\$3.7	2	BRT
1	BRT	200 S/1300 E to Mario Capecchi Drive/Research Road (New Road Intersection)					1	BRT			2	BRT
1	BRT	Mario Capecchi Drive/Research Road (New Road Intersection) to Wakara Way/Arapeen Drive (New Road Intersection)					1	BRT			2	BRT
1	BRT	Wakara Way/Arapeen Drive (New Road Intersection) to I-80/I-215/Foothill Drive Interchange					2	BRT			1	BRT
1	EB	I-80/I-215/Foothill Drive Interchange to I-215 Ramp/3300 S					2	EB			U	EB
1	EB	I-215 Ramp/3300 S to I-215 Ramp/3900 S	U	U	U	U	2	EB	N/A	N/A	3	BRT
U	EB	I-215 Ramp/3900 S to I-215 Ramp/6200 S					2	EB			U	EB
U	BRT	I-215 Ramp/6200 S to Big Cottonwood Canyon Park and Ride					2	BRT			U	BRT
U	EB	Big Cottonwood Canyon Park and Ride to Little Cottonwood Canyon					2	EB			U	EB

28. Highland Drive Corridor -- Enhanced Bus, BRT, & Mode Undetermined*Salt Lake Central - 200 S Transit Center - U Stadium - Sugar House - Millcreek - Holladay - Cottonwood Heights - Sandy Civic Center - South Jordan FrontRunner Station*

3	EB	Salt Lake Central to Highland Drive/Richmond Street (1300 E)	\$26	\$49	\$7	\$48.0	2	EB	\$64	\$7.0	N/A	N/A
3	EB	Highland Drive/Richmond Street (1300 E) to State Street/9400 S					2	EB			N/A	N/A
3	EB	State Street/9400 S to Sandy Civic Center TRAX Station					2	EB			N/A	N/A
3	BRT	Sandy Civic Ctr TRAX Statn to South Jordan FrontRunner Statn					2	EB			N/A	N/A

29. 1300 East Corridor -- BRT & Enhanced Bus

Salt Lake Central - 200 S Transit Center - U Stadium - Sugar House - Millcreek - Holladay - Murray - Fort Union Transit Center - Fort Union Blvd. - Bingham Junction TRAX Station (Red Line)

2	EB	Salt Lake Central to 200 S/900 E					1	EB			3	EB
2	EB	200 S/900 E to 200 S/1300 E					1	EB			U	BRT
2	EB	200 S/1300 E to 2800 S/Highland Drive					1	EB			U	BRT
2	BRT	2800 S/Highland Drive to 4500 S/1300 E	\$156	\$215	\$5.3	\$92.6	1	BRT	\$162	\$5.3	U	BRT
2	BRT	4500 S/1300 E to Murray Holladay Road/1300 E					1	BRT			U	BRT
2	BRT	Murray Holladay Road/1300 E to Fort Union Blvd./900 E					1	BRT			U	BRT
2	BRT	Fort Union Blvd./900 E to Red Line (Bingham Jct) TRAX Station					2	BRT			N/A	N/A

30. 900 East Corridor -- Enhanced Bus & BRT

Salt Lake Central - 200 S Transit Center - 900 E - Millcreek - Murray - Fort Union Transit Center - Midvale - Bingham Junction TRAX Station (Red Line)

2	EB	Salt Lake Central to 200 S/900 E					1	EB			N/A	N/A
2	EB	200 S/900 E to Fort Union Blvd./900 E	\$24	\$36	\$5.0	\$65.2	1	EB	\$73	N/A	N/A	N/A
2	BRT	Fort Union Blvd./900 E to Red Line (Bingham Jct) TRAX Station					2	BRT			N/A	N/A

31. 500 East Corridor -- Enhanced Bus & BRT

Salt Lake Central - 2 South Transit Center - 500 E - South Salt Lake - Millcreek - Murray - Fireclay TRAX Station (4400 S) - Downtown Murray - Intermountain Medical Center - Murray Central Station

2	EB	Salt Lake Central to 200 S/500 E					1	EB			N/A	N/A
2	EB	200 S/500 E to 4500 S/State Street	\$15	\$21	\$3.3	\$57.7	1	EB	\$42	\$3.3	N/A	N/A
2	BRT	4500 S/State Street to Murray Central TRAX Station					1	BRT			N/A	N/A

32A-32B. State Street Corridor -- BRT & Enhanced Bus

Salt Lake Central -- 2 South Transit Center -- State Street -- South Salt Lake -- Millcreek -- Downtown Murray -- Intermountain Medical Center -- Murray Central Station -- 5300 S -- Fashion Place -- Midvale -- Sandy -- Sandy Civic Center TRAX Station -- Sandy/South Jordan Transitway -- South Jordan Front Runner -- Draper FrontRunner

2	EB	Salt Lake Central to 200 S/State Street					1	EB			2	BRT
2	BRT	200 S/State Street to Vine Street/State Street					1	BRT			2	BRT
2	EB	Vine Street/State Street to Cottonwood St/Woodward St.	\$273	\$401	\$5.6	\$73.6	1	EB	\$251	\$5.6	2	BRT
2	BRT	Cottonwood St/Woodward St. to Sandy Civic Center TRAX Station					1	BRT			3	BRT
2	BRT	Sandy Civic Center TRAX Station to South Jordan FrontRunner Station					2	BRT			3	BRT
U	BRT	South Jordan FrontRunner Station to Draper FrontRunner Station	U	U	U	U	1	BRT	\$67	\$1.4	3	BRT

33A-33B. Draper Line (South) -- TRAX Extension

TRAX Blue Line Extension Draper Town Center TRAX Station -- Utah Co

3	LR	Draper Town Center TRAX Station to Salt Lake/Utah County Line	\$461	\$742	\$2.5	\$17.2	3	LRT	\$360	\$2.5	3	LR
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34. West Draper Connector -- Mode Undetermined

14600 S Future Blue Line TRAX Station -- Draper FrontRunner Station

1/U	CP/MU	14600 S TRAX Station to Draper FrontRunner Station	\$3	\$3.3	U	U	3	MU/BRT	\$36	\$0.8	N/A	N/A
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35. Redwood Road Corridor -- BRT & Enhanced Bus

200 South Transit Center - Salt Lake Central - Interstate 80 - East Airport Transit Center - Redwood Road - Glendale - Redwood Junction TRAX Station (Green Line) - West Valley - Taylorsville - West Jordan City Center TRAX Station - South Jordan - 10600 South - South Jordan FrontRunner Station - Sandy/South Jordan Transitway - Sandy Civic Center TRAX Station

2	EB	200 S Transit Center to 600 W/200 S	\$213	\$293	\$8.2	\$142.7	1	EB	\$233	\$8.2	3	BRT
2	BRT	600 W/200 S to 600 W/500 S					1	BRT			3	BRT
2	EB	600 W/500 S to Redwood Road/I-80					1	EB			3	BRT
2	BRT	Redwood Road/I-80 to Parkway Blvd./Redwood Road					1	BRT			3	BRT
2	BRT	Parkway Blvd./Redwood Road to 7000 S/Redwood Road					1	BRT			2	BRT
2	EB	7000 S/Redwood Road to 10400 S/Redwood Road					1	EB			2	BRT
2	EB	10400 S/Redwood Road to South Jordan FrontRunner Station					1	EB			N/A	N/A
2	BRT	South Jordan FrontRunner Station to Sandy Civic Center TRAX Station					2	BRT			N/A	N/A

36. 2700 West Corridor -- Enhanced Bus

200 South Transit Center - Salt Lake Central - 400 S - 900 W - 900 S - 2700 W - West Valley Interstate 80 - Airport Transit Center - Redwood Road - Glendale - Redwood Junction TRAX Station (Green Line) - West Valley Central - Salt Lake Community College Redwood Campus

2	EB	200 S Transit Center to 600 W/200 S	\$24	\$33	\$4.3	\$75.2	1	EB	\$29	\$4.3	N/A	N/A
2	EB	600 W/200 S to 2700 W/4700 S					1	EB			N/A	N/A
2	EB	2700 W/4700 S to Redwood Road/Teakwood Drive					1	EB			N/A	N/A

37A-37E. 5600 West Corridor -- BRT & Enhanced Bus

Salt Lake International Airport - International Center - West Valley City - Kearns - West Jordan - South Jordan -- Daybreak

3	EB	Salt Lake International Airport to Interstate 80/5600 West					2	EB			U	LR
1/3	CP/BRT	Interstate 80 / 5600 W to SR-201/5600 W	\$86	\$200	\$3.9	\$12.8	2	BRT	\$86	\$3.9	U	LR
1/3	CP/BRT	SR-201/5600 W to Parkway Blvd./5600 W					2	BRT			U	LR
1	BRT	Lake Park Blvd./5600 W to 6200 S/5600 W	\$136	\$163	\$1.6	\$41.2	2	BRT	\$78	\$1.6	U	LR
1/3	CP/BRT	6200 S/5600 W to Daybreak Parkway TRAX Station	\$95	\$125	\$2.5	\$8.1	2	BRT	\$95	\$2.5	U	LR

38A-38B. Mid-Jordan Extension -- Corridor Preservation & Light Rail

TRAX Daybreak South - Herriman Town Center - Riverton PRI Development

1/U	CP/LR	Daybreak Parkway TRAX Station to 12600 South/Bangerter Hwy	\$5	\$6	U	U	3	LRT	\$301	\$1.6	2	BRT
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SALT LAKE COUNTY, EAST-WEST PROJECTS**39A-39E. Salt Lake Loop (S Line Upgrade & Extensions) – Streetcar**

1300 E/100 S – 200 S Transit Center – Salt Lake Central – Granary – 900 S TRAX Station – TRAX interline – Upgraded Existing S Line – 1100 East – 900 E/400 S

3	SC	100 S/1300 E to 100 S/500 E	\$57	\$92	\$0.4	\$5.4	2	SC	\$57	\$0.4	N/A	N/A
2	SC	100 S/500 E to 200 S/200 E					2	SC			N/A	N/A
2	SC	200 S/200 E to 200 S/600 W	\$78	\$118	\$0.6	\$8.1	2	SC	\$78	\$0.6	1	SC
3	SC	200 S/600 W to 800 S/200 W					2	SC			U	SC
3	EXISTS	800 S/00 W to 2100 S TRAX Station	\$54	\$95	\$1.2	\$8.4	2	SC	\$54	\$1.2	U	EXISTS
1	LU	2100 S TRAX Station to Highland Drive/2100 S	\$18	\$22	\$0.2	\$53.6	1	SC	\$18	\$0.7	1	SC
2	SC	Highland Drive/2100 S to 1100 E/1700 S	\$48	\$76	\$0.4	\$2.5	2	SC	\$48	\$0.4	3	SC

40. University TRAX Line to SL Central TRAX Connection -- Light Rail

Existing Track from University Hospital – U of U - 400 S - Central Library - New track from 400 S/Main - Salt Lake Central

2	EXISTS	U of U Medical Center TRAX Station to 400 S/Main Street	\$79	\$116	\$1.7	\$22.8	1	LRT	\$79	\$1.7	2	LR
2	LR	400 S/Main Street to 200 S/600 W					1	LRT			2	LR

41A-41B. 2100 S/1700 S Corridor -- Enhanced Bus and BRT

1300 E 200 S - U of U Medical Center - Mario Capecchi to Research Park Transitway - Research Park - Foothill Blvd. - 2300 E - 2100 S - TRAX Central Point - Glendale - 1700 S - Redwood Road - Decker Lake - Lake Park - West Valley City – Kearns

2	BRT	1300 E/200 S to 2100 E/Foothill Drive					1	BRT			N/A	N/A
2	EB	2100 E/Foothill Drive to 2100 S TRAX Station					1	EB			N/A	N/A
2	EB	2100 S TRAX Station to Redwood Road/1700 S	\$30	\$42	\$5.7	\$99.5	2	EB	\$85	\$5.7	N/A	N/A
2	EB	Redwood Road/1700 S to 5600 W/Parkway Blvd.					2	EB			N/A	N/A
U	BRT	5600 W/Parkway Blvd. to 5600 W/6200 S	U	U	U	U	2	BRT	\$62	\$1.3	N/A	N/A

42. 3300 S/3500 S Corridor -- BRT, Existing, & Enhanced Bus

Wasatch Park & Ride - East Mill Creek - South Salt Lake - West Valley - Magna

2	EB	I-215 Ramp (Eastside)/3300 S to 1300 E/3300 S					1	EB			N/A	N/A
2	BRT	3300 S to 1300 E/3300 S to Millcreek TRAX Station					1	BRT			N/A	N/A
2	BRT	Millcreek TRAX Station to 3600 W/3500 S	\$96	\$141	\$0	\$26.8	1	EX	\$147	\$2.1	3	BRT
2	BRT	3600 W/3500 S to 6000 W/3500 S					1	BRT			1	BRT
2	EB	6000 W/3500 S to 8400 W/3500 S					1	N/A			2	BRT

43. 3900 S/4100 S Corridor -- Enhanced Bus

Wasatch Park & Ride - East Mill Creek - South Salt Lake - West Valley - 5600 W

2	EB	I-215 (Eastside Ramp)/3900 S to Meadowbrook TRAX Station	\$26	\$38	\$3.9	\$51.6	1	EB			3	EB
2	EB	Meadowbrook TRAX Station to 5600 W/4100 S					1	EB	\$26	\$3.9	N/A	N/A

44aA-44aB. 4500 S/4700 S Corridor (East Millcreek-Murray Segment) -- Enhanced Bus

East Millcreek - Murray Holladay Rd - 4500 S - Downtown Murray - Intermountain Medical Center - Murray Central Station

U	EB	4500 S/I-215 (Eastside) to 1300 E/Murray Holladay Road	U	U	U	U	3	EB	\$9	\$1.4	2	EB
2	BRT	1300 E/Murray Holladay Road to 1300 E/4500 S	\$13	\$19	\$0.8	\$10.2	3	EB	\$13	\$0.8	2	EB
2	EB	1300 E/4500 S to State Street/4500 S					1	EB			2	EB

44b. 4500 S/4700 S Corridor (Taylorsville-Murray Segment) -- Enhanced Bus & BRT

Murray Central Station - Sorensen Research Park - SLCC Redwood

1	BRT	State Street/4500 S to Murray Central TRAX Station					1	EB			3	BRT
1	EB	Murray Central TRAX Station to 4530 S/Riverboat Road	\$34	\$42	\$1.5	\$38.2	1	EB	\$29	\$1.5	3	BRT
1	BRT	4530 S/Riverboat Road to 4700 S/Redwood Road					1	BRT			3	BRT

44c. 4500 S/4700 S Corridor (Taylorsville-5600 West Segment) -- Enhanced Bus

SLCC Redwood - Kearns - 4700 S - 5600 W

2	EB	4700 S/Redwood Road to 4700 S/5600 W	\$10	\$13	\$1.5	\$29.7	1	EB	\$10	\$1.5	N/A	N/A
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45A-45B. Cottonwood Kearns Corridor -- Enhanced Bus & BRT

Little Cottonwood Canyon - Big Cottonwood Canyon Park and Ride - Cottonwood Corporate Center - Fort Union Transit Center - Fort Union Blvd. - Bingham Junction TRAX Station (Red Line) - Redwood Road - 6200 S - Kearns - Mid Jordan TRAX Line - 7000 S - 6200 S - 5600 W

U	EB	Little Cottonwood Canyon to Big Cottonwood Canyon Park and Ride	U	U	U	U	2	EB	\$8	\$1.3	3	BRT
3	BRT	Big Cottonwood Canyon Park and Ride to Fort Union Transit Center					3	BRT			3	BRT
3	BRT	Fort Union Transit Center to 900 E/Fort Union Blvd.	\$78	\$126	\$2.8	\$18.9	2	BRT	\$131	\$2.8	3	BRT
3	BRT	900 E/Fort Union Blvd. To State Street/Fort Union Blvd.					3	BRT			3	BRT
3	BRT	State Street/Fort Union Blvd. To Red Line (Bingham Junction) TRAX Station					2	BRT			3	BRT
U	BRT	Red Line (Bingham Junction) TRAX Station to 7000 S/Redwood Road					2	EB			3	EB
U	BRT	7000 S/Redwood Road to Bennion Blvd./Redwood Road	U	U	U	U	2	BRT	\$46	\$2.2	N/A	N/A
U	EB	Bennion Blvd./Redwood Road to Bennion Blvd./5600 W					3	EB			N/A	N/A

46. East Sandy Daybreak Corridor -- Enhanced Bus and BRT

Little Cottonwood Canyon - 9400 S - Sandy - Sandy Civic Center TRAX Station - Sandy/South Jordan Transitway - South Jordan Front Runner - 10600 S - South Jordan - Daybreak - West Bench

U	EB	Little Cottonwood Canyon to 9400 S/State Street					3	EB			3	BRT
U	EB	9400 S/State Street to Sandy Civic Center TRAX Station					3	EB			3	BRT
U	BRT	Sandy Civic Center TRAX Station to South Jordan FrontRunner Station	U	U	U	U	3	BRT	\$55	\$5.9	3	BRT
U	EB	South Jordan FrontRunner Station to South Jordan Parkway TRAX Station					3	EB			3	EB
U	EB	South Jordan Parkway TRAX Station to Bacchus Highway (UT-111)					3	EB			3	EB

47A-47B. Draper Town Center - Riverton Corridor -- Enhanced Bus*Draper Town Center TRAX Station- Draper FrontRunner Station - 12600 S - 3600 W - Riverton PRI Development*

1/U	CP/EB	Draper Town Center TRAX Station to 12300 S/Lone Peak Parkway	\$7	\$8	U	U	2	EB	\$22	\$3.4	U	BRT
1/U	CP/EB	12300 S/Lone Peak Parkway to PRI Property					2	EB			3	BRT

48. Big Cottonwood Corridor -- Mode Undetermined*Mouth of Big Cottonwood Canyon - Brighton Ski Resort*

U	EB	Mouth of Big Cottonwood Canyon to Brighton Ski Resort	U	U	U	U	3	EB	\$32	\$4.9	U	BRT
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49. Little Cottonwood Corridor -- Mode Undetermined*Mouth of Little Cottonwood Canyon - Alta Ski Resort*

U	MU	Mouth of Little Cottonwood Canyon to Alta Ski Resort	U	U	U	U	3	EB	\$18	\$2.7	U	BRT
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50. Alta - Summit Co. Connector -- Mode Undetermined*Alta Ski Resort to Summit County Line*

U	MU	Alta Ski Resort to Brighton Ski Resort	U	U	U	U	N/A	N/A	N/A	N/A	N/A	N/A
U	MU	Brighton Ski Resort to Summit County Line	U	U	U	U	N/A	N/A	N/A	N/A	N/A	N/A

PROGRAMMATIC PROJECTS**51. Maintenance of Assets**

1/2/3	PLI	State of Good Repair: 35% rail non-vehicle assets, 29% buses, 26% rail vehicles, 7% maintenance for new RTP assets, 4% facilities, locations TBD	\$2,677	\$4,033	1/2/3	N/A	1/2/3	Part
1/2/3	PLI	Other Major Capital Maintenance: 36% miscellaneous, 24% rail maintenance, 23% information technology, 17% facilities/equipment, Locations TBD	\$474	\$636	1/2/3	N/A	1/2/3	Part

52. Intelligent Transportation Systems

1/2/3	PLI	A Broad array of technologies improving customer service and system efficiency, locations TBD	\$110	\$143	1/2/3	\$130	N/A	Part
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53. First/Last Mile & Bike System*Assorted access improvements near transit stops, locations TBD*

U	PLI	Assorted access improvements near transit stops, locations TBD	\$0	\$0	1/2/3	\$212	N/A	N/A
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54. Local Bus and Existing Rail System Span of Service Increases*Largely expansion of the days and hours of service on existing services, specifics TBD*

1/2/3	PLI	Illustrative increases: Local Bus--30% increase in first phase, 5% increase in second and third phases; TRAX--27% increase in first phase; FrontRunner SLC to Ogden--59% in first phase. These rail increases would extend current weekday service to Saturday and extend current Saturday service to Sunday.	\$1,083	\$1,553	1/2/3	\$1,533	1/2/3	30% BUS increase
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Notes**12015-2040 Draft RTP Phases: Phase 1 2015-2024; Phase 2 2025-2034; Phase 3 2035-2040**

2 Project Abbreviations: U=Not Funded, CP=Corridor Preservation, EB=Enhanced Bus, BRT=Bus Rapid Transit, SC=Streetcar (e.g. S-Line), LRT=Light-rail (TRAX), CR=Commuter Rail (FrontRunner), LU= Line Upgrade, MU/x=Mode Undetermined/mode used for cost assumptions, P&R=Park and Ride, HUB=Transit Hub or Center, FACL=Vehicle Maintenance Facility, PLI=Group of generally small projects of regional interest with yet to be determined locations

3 Capital Costs (2015\$): Project Construction and vehicle costs in millions of uninflated/2015 dollars. Capital costs reflect a specific order of construction as some project costs are constructed by other projects. Project costs include proportional cost of new Maintenance Facilities for the required new vehicles.

4 Capital Costs (YOES): Project Construction and vehicle costs in millions of uninflated/2015 dollars. Capital costs reflect a specific order of construction as some project costs are constructed by other projects. Project costs include proportional cost of new Maintenance Facilities for the required new vehicles.

5 Operating Costs (2015\$): Direct and indirect costs (administration and support) for the proposed project for one year at TRAX-like frequencies, hours of service, and days of service. Costs are in millions of uninflated dollars.

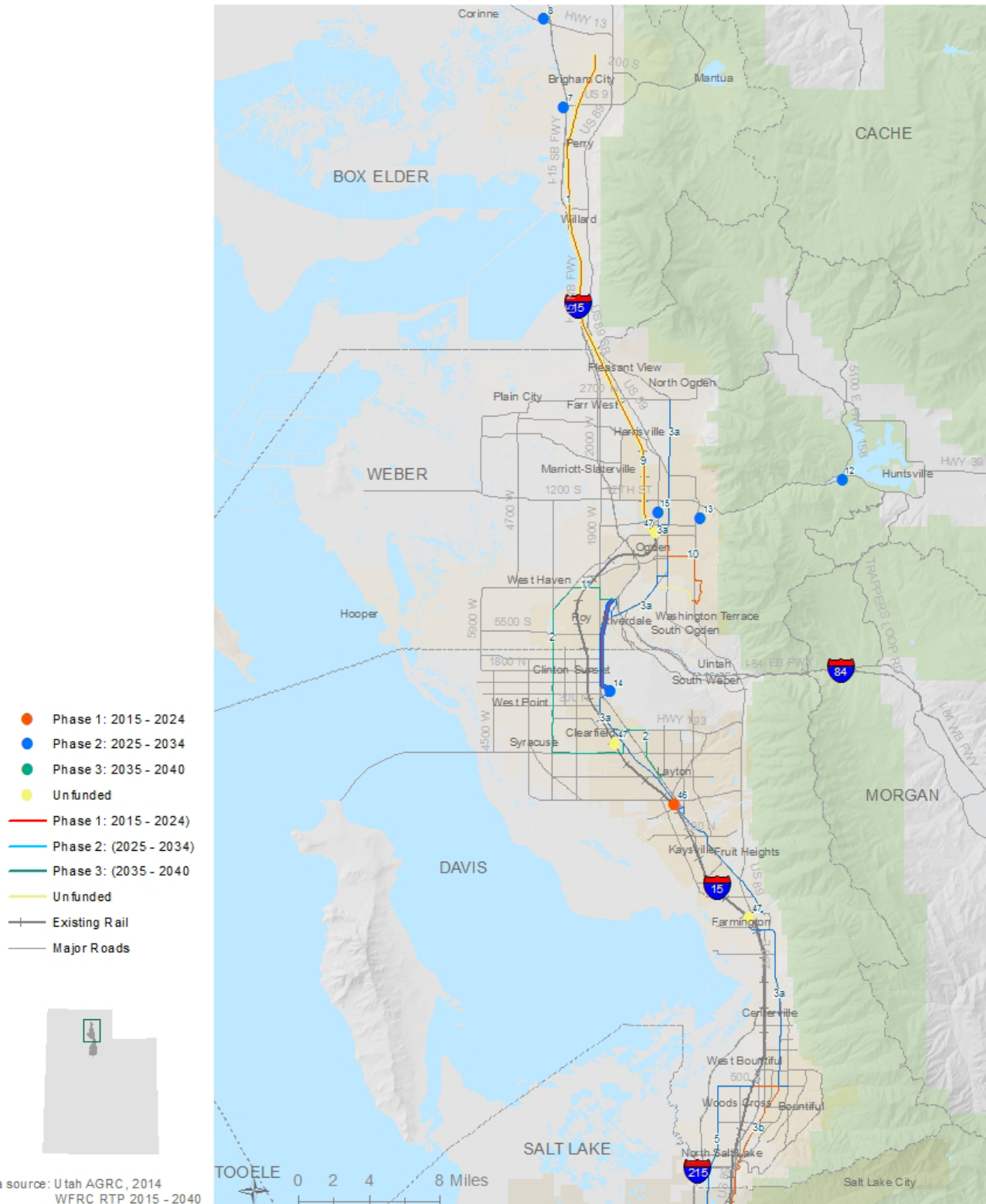
6 Operating Costs (YOES): Total direct and indirect costs (administration and support) for the proposed project for the time frame assumed in the RTP at TRAX-like frequencies, hours of service, and days of service. Costs are in millions of uninflated dollars.

7 2011-2040 Final RTP Phases: Phase 1 2011-2020; Phase 2 2021-2030; Phase 3 2031-2040

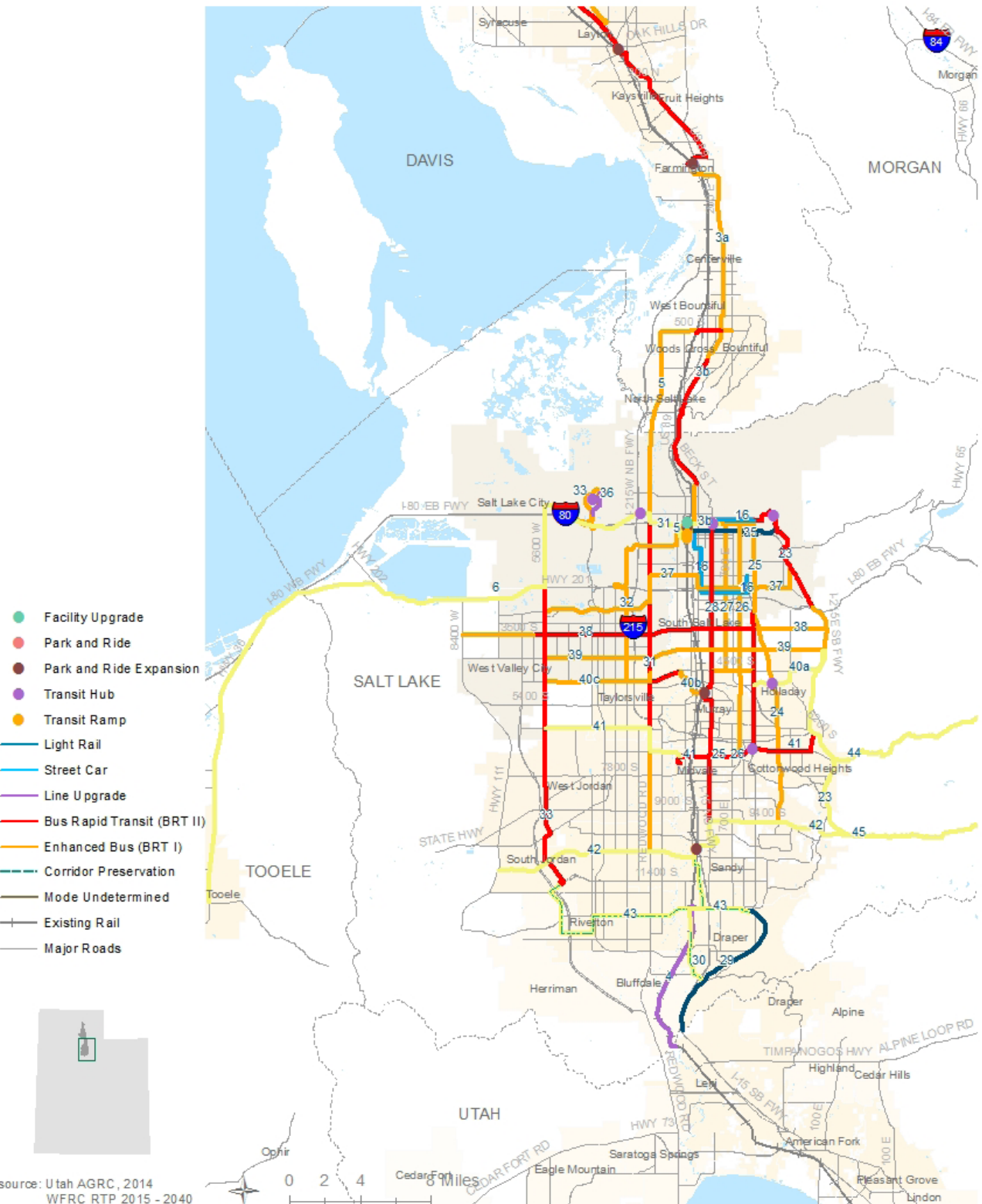
8 2015-2015 Needed Project Descriptions: These projects reflect the Preferred Scenario from the scenario planning process and are not cost constrained to 2040 financial assumptions. Projects were placed into phases based in part on project scores and capital costs as follows: 40% phase 1, 40% phase 2, 20% phase 3.

9 2011-2040 Final RTP Descriptions: These projects are from the cost constrained Regional Transportation Plan adopted in 2011.

MAP 7 - 7

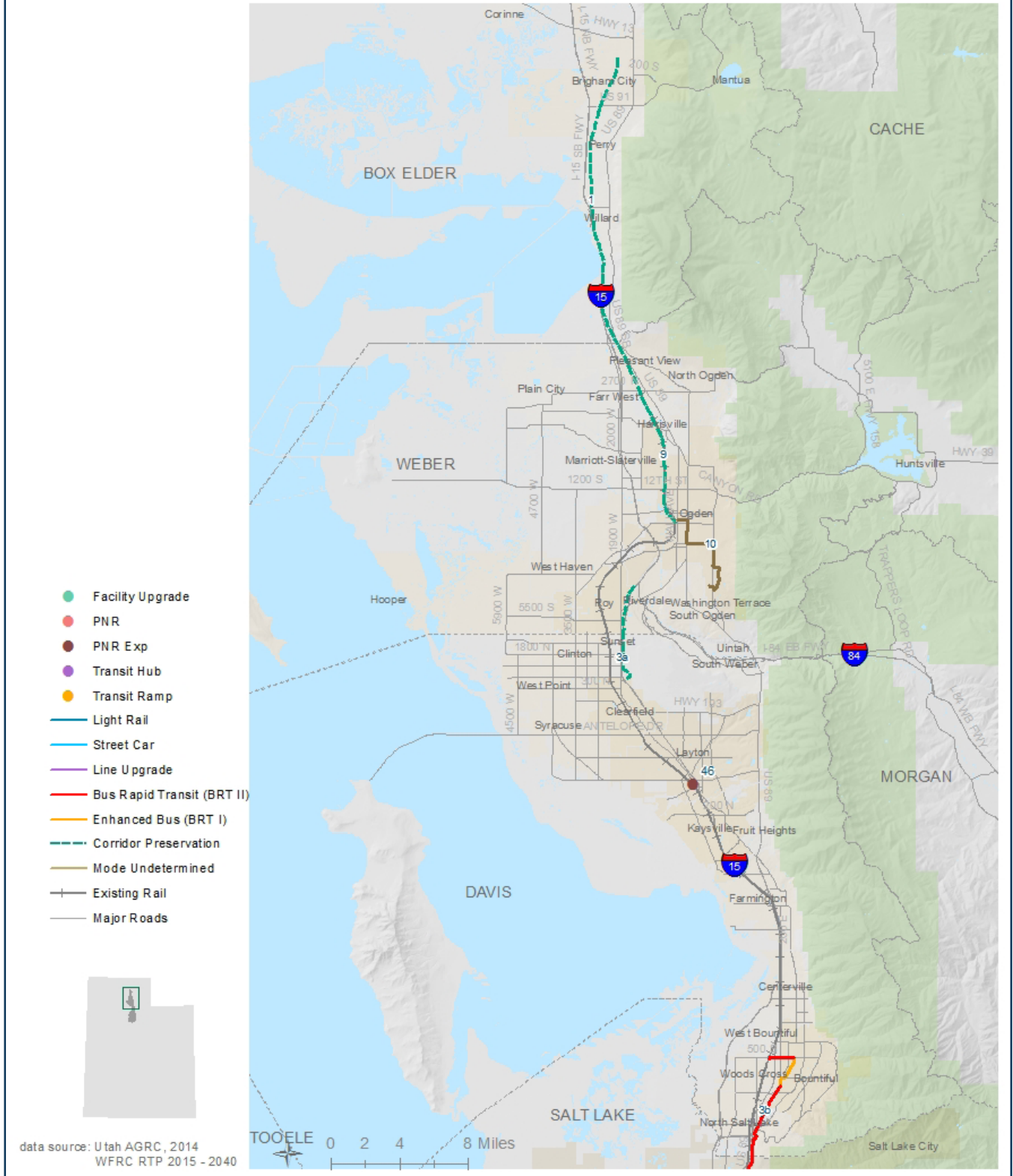
2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
TRANSIT PROJECTS BY PHASE: WEBER, DAVIS, BOX ELDER COUNTIES

MAP 7 - 8

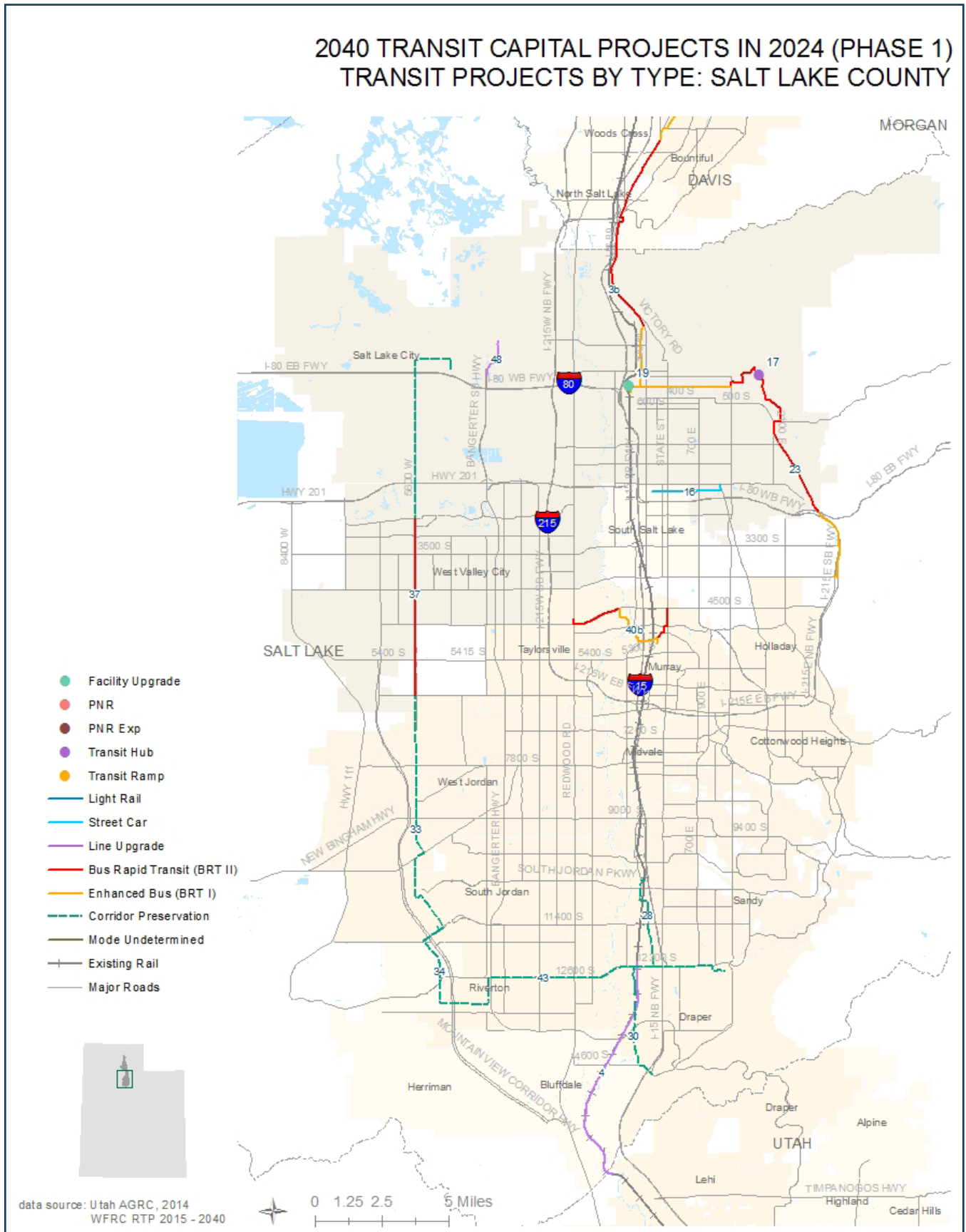
2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
TRANSIT PROJECTS BY TYPE: SALT LAKE COUNTY

MAP 7 - 9

2040 TRANSIT CAPITAL PROJECTS IN 2024 (PHASE 1)
TRANSIT PROJECTS BY TYPE: DAVIS, WEBER AND BOX ELDER COUNTIES

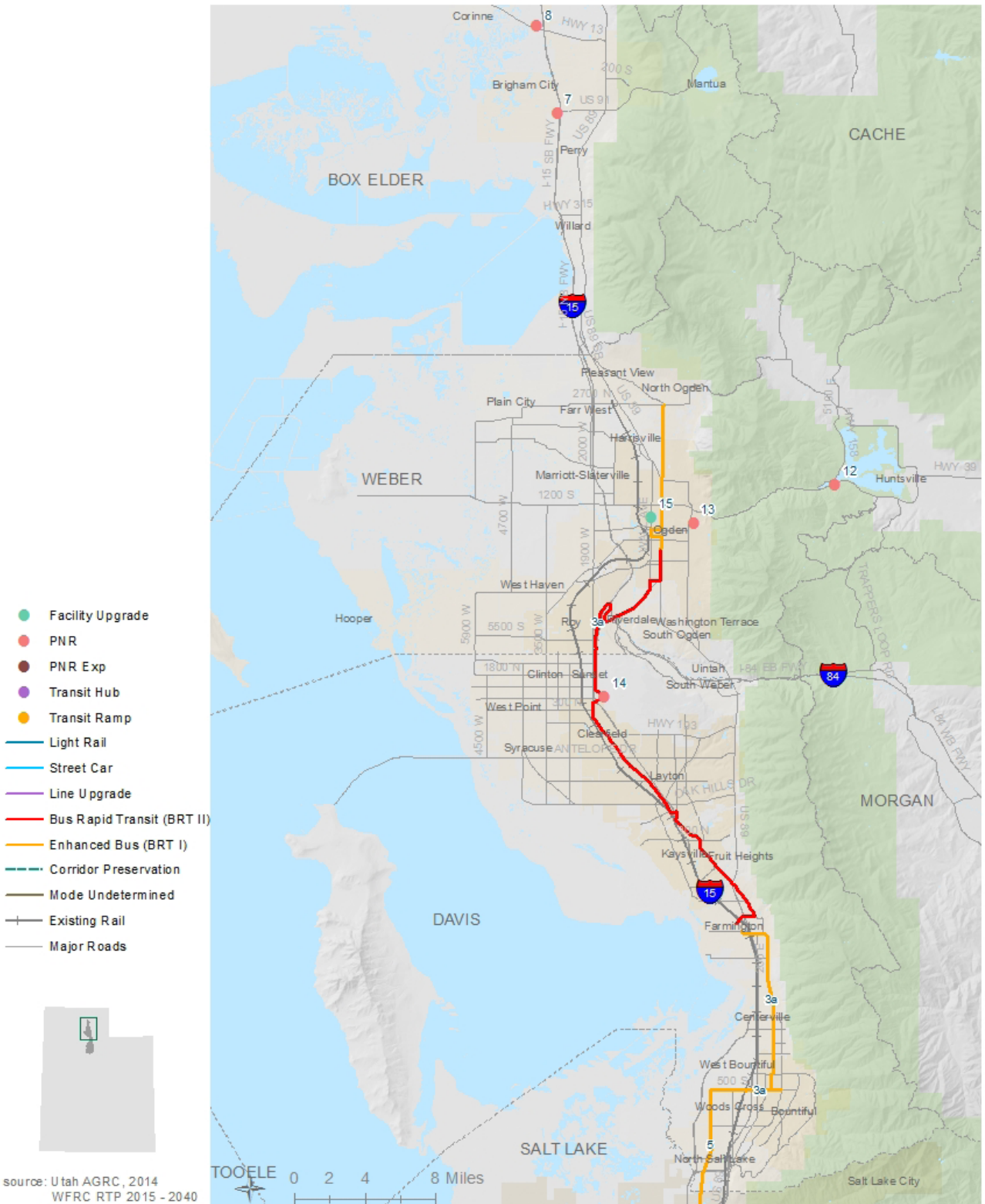


MAP 7 - 10

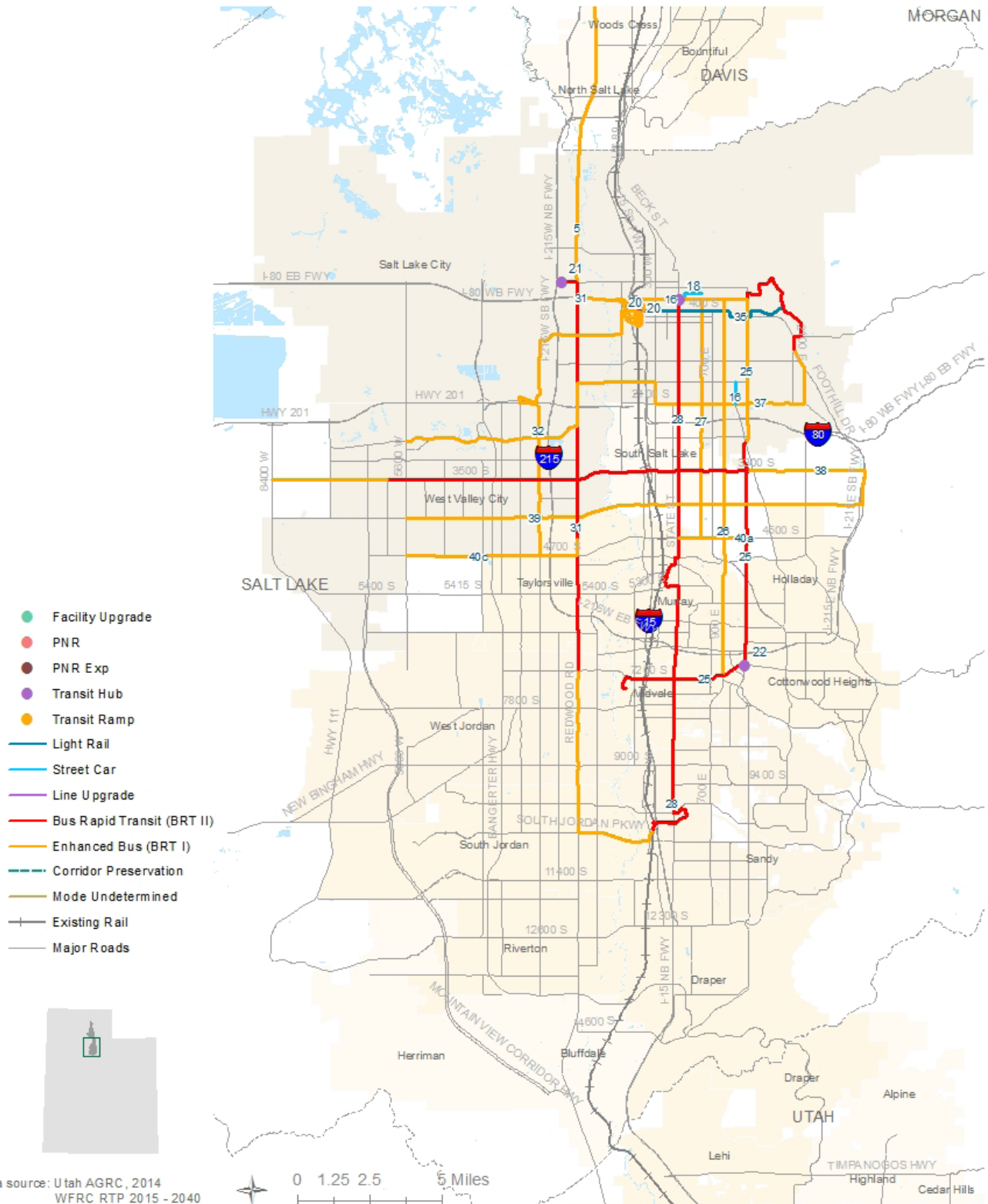


MAP 7 - 11

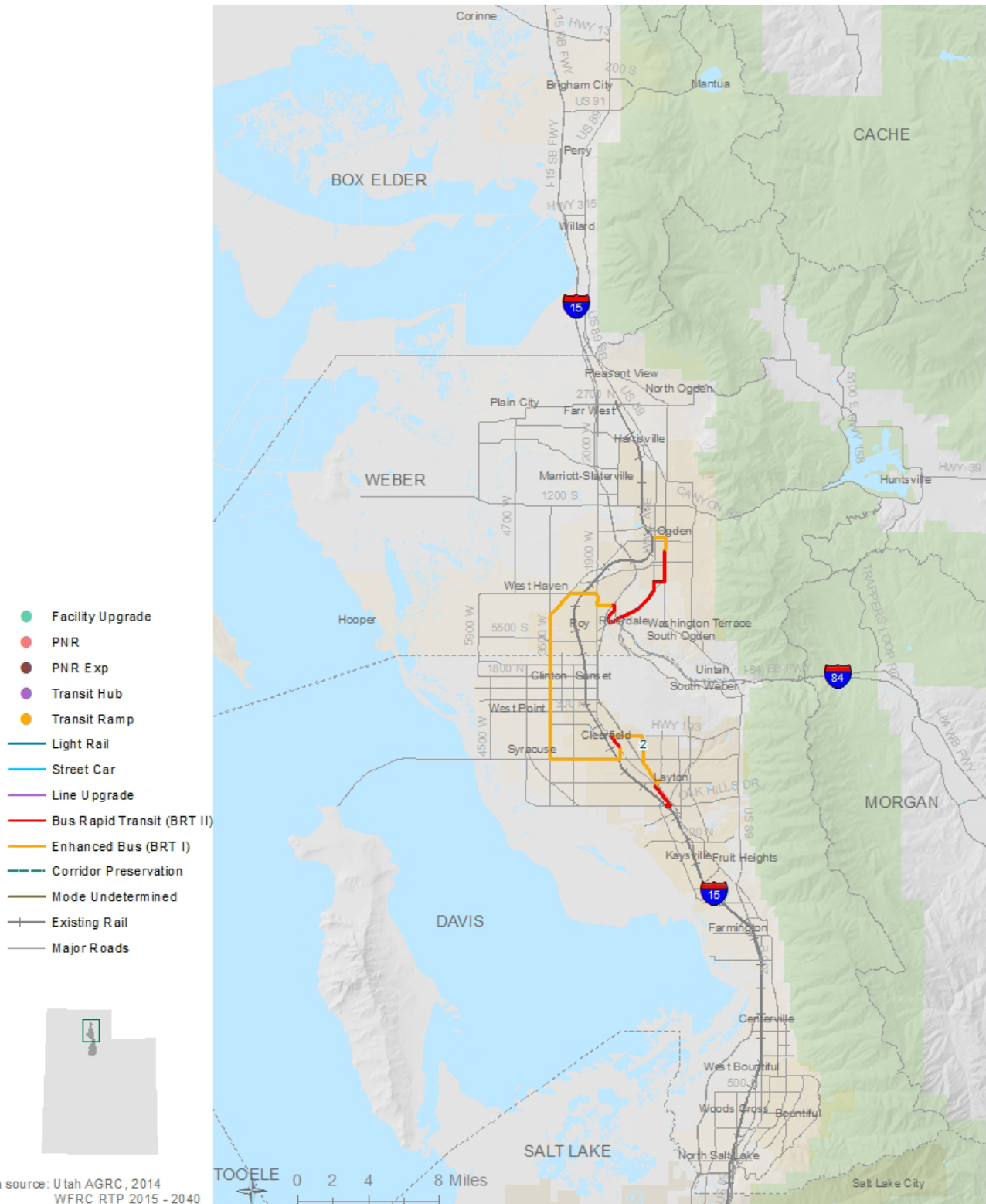
2040 TRANSIT CAPITAL PROJECTS IN 2034 (PHASE 2)
TRANSIT PROJECTS BY TYPE: DAVIS, WEBER AND BOX ELDER COUNTIES



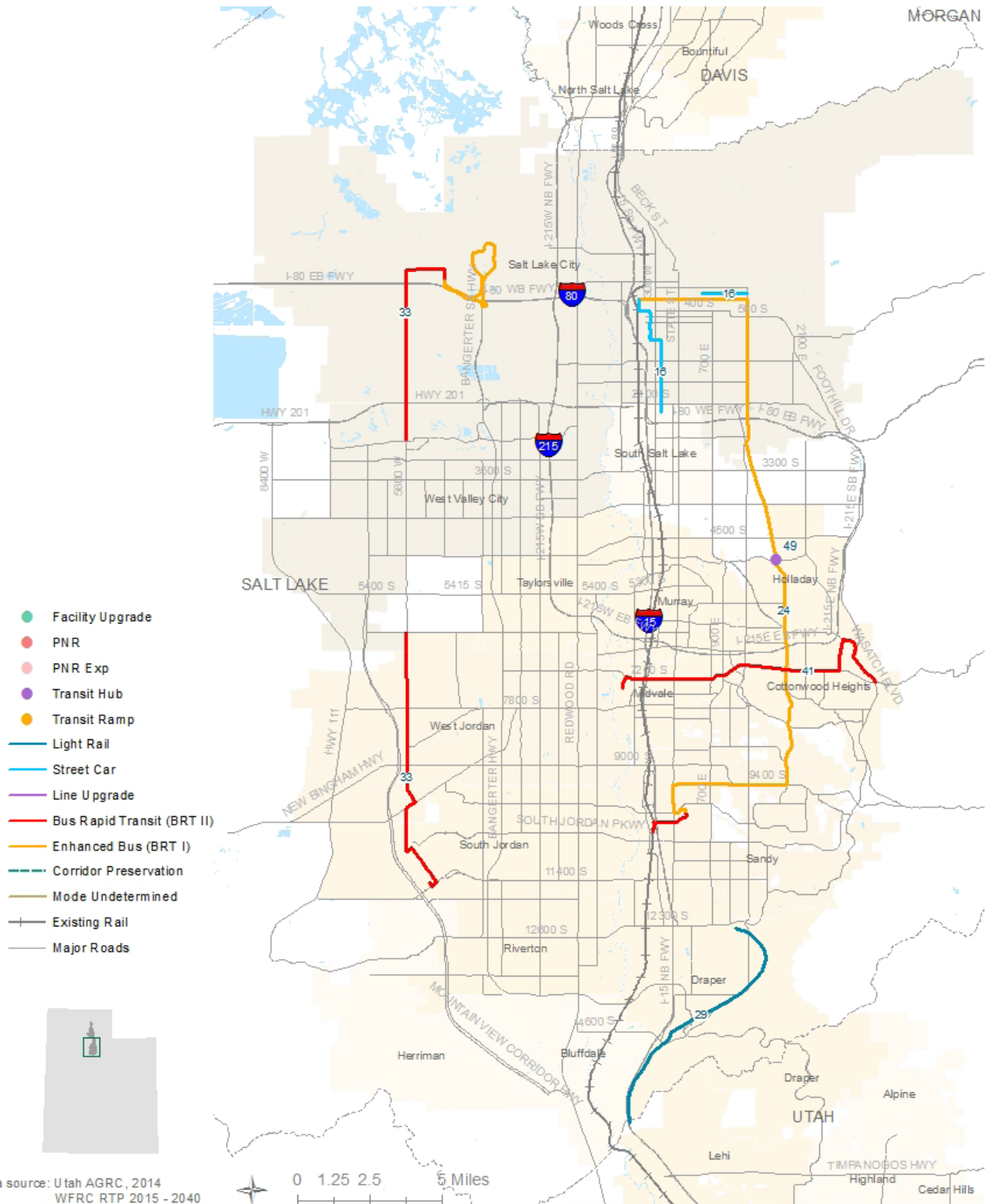
MAP 7 - 12

2040 TRANSIT CAPITAL PROJECTS IN 2034 (PHASE 2)
TRANSIT PROJECTS BY TYPE: SALT LAKE COUNTY

MAP 7 - 13

2040 TRANSIT CAPITAL PROJECTS IN 2040 (PHASE 3)
TRANSIT PROJECTS BY TYPE: DAVIS, WEBER AND BOX ELDER COUNTIES

MAP 7 - 14

2040 TRANSIT CAPITAL PROJECTS IN 2040 (PHASE 3)
TRANSIT PROJECTS BY TYPE: SALT LAKE COUNTY

OTHER TRANSIT SYSTEM IMPROVEMENTS

Mobility Management

The [Human Service Transportation Coordination Presidential Executive Order](#) (13330- 24 FEB 04) recognized the critical role of transportation in providing access to employment, medical and health care, education, and other community services and amenities. It is noted that the development, implementation, and maintenance of responsive, comprehensive, coordinated community transportation systems is essential for persons with disabilities, persons with low incomes, and older adults who rely on transportation to fully participate in their communities. These populations are collectively referred to as the Transportation Disadvantaged.

Federal transit law requires that projects funded from the [Enhanced Mobility of Seniors and Individuals with Disabilities](#) (Section 5310) Program be derived from a locally developed, coordinated public transit-human services transportation plan (“coordinated plan”). A coordinated plan should maximize coverage and efficiency by minimizing duplication of services. Further, a coordinated plan should be developed through a process that includes representatives of public, private and non-profit transportation and human services providers, and participation by the public. Federal transit law further states that [Sections 5311](#) and [5307](#) also require coordination with transportation assistance under other Federal programs.

The WFRC partnered with MAG and UTA in 2009 to develop a coordinated mobility plan that included the entire UTA service area (Davis, Morgan, Salt Lake, Tooele, Utah, and Weber counties, and the southern portion of Box Elder County). The planning process included extensive public outreach and collaboration with coordination planning partners including transportation providers, passengers and advocates, human service providers, and representatives from local/regional governments. This plan was updated in 2013 and named the Wasatch Mobility Plan. The full Wasatch Mobility Plan is included in [Appendix M](#).

The [Utah Transit Authority](#) is now leading the effort to implement this Plan and administers the large urban portion of the 5310 Program in the State of Utah. Key strategies included in the Plan are as follows:

- Expand partner collaborations to coordinate services

- Develop a one click software application to link providers and disadvantaged populations to a single centralized database
- Provide open source scheduling and dispatching software
- Secure additional funding resources
- Promote public transit usage
- Promote accessibility and livability

Route Deviation Flex Routes

UTA’s route deviation flex route service, called “The Lift,” has been designed and implemented to help meet transportation service gaps in lower density areas. The system allows bus drivers, upon request, to deviate from the published route by up to ¾ mile, upon request, in order to provide curb-side pick-up or drop-off service. UTA currently operates The Lift in American Fork/Alpine, Brigham City, Draper, Grantsville, Herriman, Riverton, Sandy, Syracuse/Hooper, and Tooele City. The Lift is available to all UTA passengers and provides paratransit riders with an additional transportation option. Building on the successes of existing routes, UTA will continue to expand The Lift to help meet transportation service gaps.

Paratransit System

For eligible riders who have a transportation disability that prevents them from making some or all of their trips on UTA’s fixed route buses and TRAX light rail services, the UTA offers a comparable, curb-to-curb paratransit service which in the Salt Lake Area is referred to as Flextrans. This service is compliant with provisions found in the [American with Disabilities Act of 1990](#) (ADA) and is provided as part of UTA’s efforts to meet the requirements of this Act.

Paratransit service must be reserved at least one day in advance. The service can be provided using either ramp-equipped minibuses, lift-equipped vans, a 15-passenger van or by a taxi service that has been scheduled through UTA’s paratransit office. Paratransit service operates in the same areas and during the same days and hours as local all-day fixed route bus and TRAX light rail services. The service can be used for any trip purpose. All of UTA’s existing vehicles and facilities are ADA accessible. All future vehicles and facilities will also be ADA accessible. UTA’s paratransit system will expand in parallel with the transit system improvements defined by the 2015 - 2040 RTP, creating broader coverage for persons with disabilities.

OTHER TRANSPORTATION MODE RECOMMENDATIONS

In addition to highway and transit system improvements, the 2015- 2040 RTP also encourages the further development of other transportation modes for moving people throughout the Wasatch Front Region. Other transportation modes, such as bicycle and pedestrian travel, are an integral part of the 2015- 2040 RTP recommendations. The seamless interfacing of other modes with highway and transit services will be a key element of to the future of an integrated transportation system.

Residents are more likely to walk in areas with sidewalks and cyclists are more likely to bike with safe bike facilities. We have seen progress and an increase in use for non-motorized travel, yet significant work can be done to equip streets with adequate facilities for pedestrians, bicyclists, or transit users. The WFRC is working to create additional strategies to support this type of travel, and this may include continuous network of sidewalks that are wide enough for pedestrians to share with bikes, to accommodate transit users or their way to stations or stops, and that are accessible to those in wheelchairs. Also of concern are streets that are too wide to be safely crossed.

Although specific design decisions about the cross section of streets and highways are made during project development, broad decisions such as right-of-way width, functional classification, and the desirability of bikeways and transit lanes can be made early in the planning process. The WFRC has developed a [Complete Streets Policy](#) template and a workshop process for interested members. This then helps to decide which of the elements to include and selecting the appropriate dimensions within these ranges should reflect the needs of the Region and be in line with relevant federal guidelines. The most appropriate design of a public right-of-way balances the mobility needs of the people using the facility (motorists, pedestrians, bicyclists, or transit) with the physical constraints of the corridor within which the facility is located.

These “alternative modes” of transportation have the potential to yield large congestion and air quality benefits. Given that much of the mobile source pollution we experience comes from the first few minutes of vehicular travel when catalytic converters are not fully functioning, it follows that shifting short trips to walking and biking could significantly improve air quality.

Many existing and new collector and arterial streets have been identified as bicycle routes within the 2015 - 2040 RTP Bike Plans, and they highlight where highway “shoulders” are, or are planned to be, wide enough to accommodate bicycle travel. The routes in the Plan are intended to serve major activity centers, such as Salt Lake City’s Central Business District, the University of Utah, Weber State University, the Salt Lake Community College’s several campuses, major employment centers, transit stations, and, on a more local level, numerous public schools. Legally defined as vehicles, bicycles are allowed on all streets except where specifically prohibited, such as urban interstate highways and some high speed principal arterials (Bangerter Highway). Therefore, all streets, other than those types described above, should be designed to accommodate the bicycle mode of travel where possible. Also, the Regional Bicycle Plan identifies other bicycle trails or paths that have their own rights-of-ways.

The 2015- 2040 RTP Bicycle Base Network identifies several specific facility improvements. Class I bicycle facilities provide for bicycle travel on a ROW completely separated from the travel lanes and shoulders of any street or highway. Class I facilities may be paved or unpaved, could have steep grades, and can be shared with pedestrians. Class II bicycle facilities provide a striped and signed lane for one-way bike travel on a street, usually one with a wider shoulder to accommodate the bicycle lane. Finally, Class III bicycle facilities provide a “sign only” for designated bicycle travel on a roadway shared with motor vehicles. It is recommended that the [AASHTO Guide for the Development of Bicycle Facilities](#), 1999, be referenced when designing a bicycle path or trail. In 2012, the 4th edition of the AASHTO Guide for the Development of Bicycle Facilities was produced for purchase.

As with bicycle facilities, pedestrian facilities, primarily sidewalks, are also local in nature. Pedestrians should be accommodated by providing sidewalks on all local, collector and arterial streets. Where neighborhood pedestrian travel patterns have been or could be disrupted by busy arterial streets, expressways, and freeways, grade separated pedestrian walkways and/or other facilities should be considered. Pedestrian facilities should be designed with safety in mind, especially for facilities that are heavily used by both pedestrian and vehicular traffic.

Program Policies

As the result of previous bicycle planning efforts, policies were recommended to help with establishing priorities.

These policies provide a basis for describing the role of bicycle facilities and trails in the 2015- 2040 RTP. As part of the 2015- 2040 RTP, these policies were recently reviewed to determine their relevance, considering current and projected needs and conditions. The bicycle and trails policies are as follows:

- Bicycle paths and pedestrian facilities will be included in the Transportation Plan;
- Regional planning should focus on a continuous regional system of trails, bikeways or paths, bicycle routes and lanes;
- Wherever possible, projects must be consistent with local trails plans, general plans, and AASHTO design guidelines, whenever possible. Planning and project funding should recognize as a primary goal safety for pedestrians, bicyclists, and motorists;
- Projects will be prioritized and implementation phased over the period of the 2015- 2040 RTP based on need, safety, funding, and other considerations. Projects will be coordinated with local governments, Counties, the WFRC, UDOT, UTA, etc.;
- Major activity centers, such as shopping centers, office and industrial employment centers, transportation centers, parks, community centers and libraries, and schools and universities, should be accessible to bicyclists and pedestrian from surrounding residential areas;
- Sidewalks providing pedestrian access to transit vehicles should be available along all transit routes within the urbanized area;
- Barrier crossings (rivers, railroads, expressways, freeways, etc.) within urbanized areas should have provisions for both bicycle lanes and pedestrian sidewalks;
- Priority consideration within the “congested corridors” should be given to implementing bicycle and pedestrian projects and programs that most clearly increase the potential benefits from these facilities and activities and that combine well with related congestion management strategies;
- Priority consideration for bicycle and pedestrian facilities should also be directed to areas of the Wasatch Front Region experiencing the early stages of urbanization in order to ensure that adequate provisions for non-motorized travel are incorporated in the transportation system as facilities are constructed or upgraded;
- The public should become better informed of the beneficial effects and personal well-being resulting from non-motorized travel;
- Provisions for bicycle and pedestrian travel will be incorporated into congestion management programs where feasible and appropriate; and

- The reasons and concerns members of the public expressed for lack of interest in using non-motorized modes, such as safety, traffic, barriers, lack of facilities, and other concerns, should be addressed in order to encourage higher usage of these modes.

Specific pedestrian facilities were not identified as part of the 2015- 2040 RTP. However, general pedestrian friendly land use and development policy recommendations for pedestrian facilities and amenities are being proposed as a guide for local governments within the Wasatch Front Region to consider as transportation facilities are planned and implemented. These policy recommendations are oriented towards local government officials who control the regulation of land use and development for their communities. Local governments are encouraged to follow pedestrian friendly urban design, site planning and subdivision design principles in evaluating new development proposals, and to incorporate pedestrian facilities in existing developments wherever practicable. Neighborhood pedestrian access can be enhanced by creating trails, connecting cul-de-sacs with walkways, and providing other pedestrian facilities.

Funding- Adequate funding is a key factor for successful implementation of pedestrian and bicycle projects. Traditionally, pedestrian and bicycle improvements have been required to compete with other projects that may have a higher priority. In many instances, whenever there is a widening, reconstruction, or some other street improvement, provisions for pedestrian and bicycle facilities are considered and funded as a part of the street improvement and for the first time ever included in the 2015- 2040 RTP project lists. The new UDOT [Active Transportation Policy](#) is helping to tackle some of these concerns. In other instances, the project may be specific to a pedestrian and/or a bicycle facility. All federal funding programs created under [SAFETEA-LU](#) include pedestrian and bicycle facilities as eligible activities

UDOT Statewide Active Transportation Program

The [Utah Department of Transportation](#) is committed to ongoing assessment of the state’s transportation system and the evaluation of public input regarding accommodations for bicycles and pedestrians. To that end, UDOT develops studies, programs, policies, procedures and projects to address active transportation.

Collaboration

Along with public input, collaboration with other agencies and organizations has been instrumental in moving active transportation forward in Utah--and along the Wasatch Front. In order to meet ever increasing

transportation demands and extend the reach of active transportation, UDOT promotes the concept of “integrated transportation.” This concept focuses on planning, designing and building infrastructure that takes into account all transportation modes, including transit. By working together and emphasizing integration, state and local transportation organizations and agencies can efficiently utilize resources to develop a state and regional transportation system that meets the needs of all users.

Utah Collaborative Active Transportation Study

In 2012, the Utah Department of Transportation launched a strategic effort in cooperation with the [Utah Transit Authority](#), [Salt Lake County](#), [Wasatch Front Regional Council](#) and [Mountainland Association of Governments](#) to plan bicycle and pedestrian infrastructure in the metropolitan areas of the Wasatch Front. The study prioritized routes in order to create a comprehensive primary network for bicycles with pedestrian links to transit. The [Utah Collaborative Active Transportation Study](#) (UCATS) gathered and mapped all available bicycle/pedestrian infrastructure inventories, plans and projects in the study area, and analyzed the information to identify critical gaps and important transit connections. Phase 2 of the UCATS Project, which began in early 2015 included additional partners from [Weber](#) and [Davis County](#) combined with the original partners, will devise performance measures and a process to keep the UCATS primary bicycle network updated and new infrastructure comes online.

UDOT Region Bike Plans

The Utah Department of Transportation has built on the UCATS effort by using the bicycle system developed under the study as the basis for Bike Plans in each of the participating UDOT Regions. The Region 1, 2 & 3 Bike Plans will be expanded into rural areas and counties outside of the Wasatch Front. The Region 4 Bike Plan, which was developed separately, will also be expanded. Together, these plans comprise Utah’s State Bike Plan.

UDOT Active Transportation Policy

The Utah Department of Transportation’s policies and procedures have undergone change and clarification. These changes have resulted in an increased emphasis on active transportation. New policy guidelines calling for the accommodation of active transportation in all project phases, from planning through maintenance, were approved in December 2013. Implementation procedures for the new Bike Plans are being developed as each Region reviews the application of the new policy.

Road Respect Communities

Utah’s [Road Respect](#) program, which began as a multi-agency sponsored on-road safety campaign, has been expanded to include the Road Respect Community program, which is managed by UDOT. Road Respect Community is designed to help cities and towns build their local bicycle programs with an emphasis on effective planning and safety. Road Respect Community will continue to grow as additional counties, cities and towns join the program.

TravelWise

Other active transportation-related activities include UDOT’s [TravelWise](#) program, which promotes the advantages of using active transportation, including reduced traffic congestion and energy consumption, clean air and healthy lifestyles. The Department’s [Safe Routes to School Program](#) encourages Utah’s children to walk and bike to school. Collaboration with other organizations and agencies, and communication with stakeholders are key components in UDOT’s active transportation program. Both of these elements will continue to inform Department in its active transportation-related activities.

TRANSPORTATION SYSTEM RECOMMENDATIONS

Transportation System Management And Transportation Demand Management

The Congestion Management Process involves an evaluation of Transportation System Management and Transportation Demand Management strategies as potential mitigation to congestion instead of increasing highway capacity. Corridors have been identified where TSM and TDM strategies can delay the need for new capacity. Where these strategies cannot meet the travel demand, new capacity recommendations are made (See Highway System Improvements Section). TSM and TDM strategies are also recommended for incorporation into new capacity projects in order to maximize the effectiveness of the new capacity as well as to minimize the need for even more highways.

A comparison of level of service with and without implementing TSM and TDM strategies has been made in the travel demand model to identify any roadways where these strategies could be applied to delay the need for new highway capacity. These facilities are listed in [Table 7-6](#). The objective was to improve LOS from “E” or “F” to “D” or better by applying TSM and TDM. Instances

where this could be accomplished were limited. Rather than successive links in a corridor showing improvement, TSM and TDM benefits as measured by the model tend to be in isolated segments. This is not to suggest TSM and TDM should be ignored. On the contrary, there are real benefits to be gained and the costs in most cases are marginal, but there is a need to be realistic with expectations about the resulting improvements in transportation system performance. Rapid growth along the Wasatch Front makes it difficult to keep up with

demand by pursuing TSM and TDM alone.

The modeling only included those TSM and TDM strategies that are readily quantifiable. The modeled TSM strategies include signal coordination, ramp metering, incident management, the use of other intelligent transportation systems, and access management. Strategies that were not modeled are traditional intersection and interchange improvements, as well as more innovative approaches, such as single point

TABLE 7 - 6 TSM AND TDM STRATEGY RECOMMENDATIONS TO DELAY NEW CAPACITY ADDITIONS

RECOMMENDED TSM PROJECTS			
ROUTE	FROM	TO	IMPROVEMENT
Salt Lake-West Valley Area			
2100 South	I-15	1300 East	Operational
3300 South / 3500 South	I-215 (West)	Highland Drive	Operational
5400 South	Redwood Road	State Street	Operational
Fort Union Boulevard	Union Park Boulevard	3000 East	Operational
9000 South	I-15	700 East	Operational
9400 South	State Street	Ski Connection Road	Operational
Little Cottonwood Road	<u>Eastdale Drive</u>	Wasatch Boulevard	Operational
12600 South	<u>Bangerter Highway</u>	Redwood Road	Operational
Herriman Main Street	7800 West	6200 West	Operational
5600 West	2700 South	6200 South	Operational
5600 West	6200 South	New Bingham Highway	Operational
Redwood Road	SR-201	4700 South	Operational
Redwood Road	9000 South	11400 South	Operational
State Street	600 South	I-215	Operational
State Street	I-215	12300 South	Operational
900 East	3300 South	4500 South	Operational
Union Park Boulevard / 1300 East	Fort Union Boulevard	7800 South	Operational
Highland Drive	Murray Holladay Boulevard	Van Winkle Expressway	Operational
500 South / Foothill Drive	1300 East	2300 East	Operational
Ogden-Layton Area			
SR-193	I-15	US-89	Operational
2600 South / 1100 North	Redwood Road	I-15	Operational
Center Street	Redwood Road	US-89	Operational
20th Street	Wall Avenue	Harrison Boulevard	Operational
21st Street	Wall Avenue	Adams Avenue	Operational
3500 West	1200 South	Midland Drive	Operational
600 West	<u>Elberta Drive</u>	2600 North	Operational
Harrison Boulevard	2600 North	12th Street	Operational
Harrison Boulevard	12th Street	Country Hills Drive	Operational

urban interchanges and continuous flow intersections. Application of all of these strategies is recommended where appropriate system-wide. For the new capacity projects in the RTP, TSM strategies are provided during concept development as specific project improvements.

Modeled TDM strategies include ridesharing, vanpools, public transit service in its various modes; plus flextime, telecommuting, and growth management. Other TDM strategies recommended for use throughout the Region include park-and-ride facilities, HOV lanes, car sharing, and adding pedestrian and bicycle facilities. Much of the new capacity identified in the RTP is needed to address peak period demand. At other times this additional capacity is underused. Managing peak period demand can be a cost effective solution to address the imbalanced use of the transportation system.

Intelligent Transportation Systems

The tools to preserve capacity of highway and transit facilities involve the usage of intelligent transportation systems (ITS). These tools include technologies such as ramp metering, incident management, signal coordination, automated transit vehicle location, and passenger counting. As demand for transportation facilities continues to outpace the ability to provide them, it becomes more and more critical to implement ITS strategies. Additionally, in order to responsibly operate facilities that are constructed and maximize their usefulness, it is essential to plan for ITS. This section will review benefits of current ITS technologies, discuss potential future technology, and provide recommendations for implementing ITS strategies.

As indicated in [Table 7-7](#), significant savings have been achieved by implementation of ITS in Utah. The delay reduction benefits value the time saved conservatively at about \$12 per hour. The crash reduction benefits are based on [Federal Highway Administration](#) estimates.

Incident Management Teams (IMT) in the Salt Lake-West Valley and Ogden-Layton Urbanized Areas are able to reduce incident blockages by 15 to 35 minutes, with time savings generally increasing with the severity of the accident. Dynamic Message Signs (DMS) help alert drivers to traffic accidents as well as construction and inclement weather conditions. Traffic lights at freeway on-ramps improve the traffic flow on the freeways during peak periods.

While continuous green traffic lights are not possible, significant delay reduction results from coordinating and updating signal timings. Closed-circuit television cameras support each of the other ITS components by facilitating real-time responses to changing conditions. In addition to the delay and safety benefits, annual savings in fuel consumption, vehicle stops, and pollutant emissions total about \$35 million. The overall benefit to cost ratio is over 17:1, which translates to a very cost-effective investment.

The benefits cited above are from the ITS system in Salt Lake County. Proportional benefits are accruing in Davis, Utah, and Weber Counties where ITS has more recently been deployed and the system is not as mature. In all of these counties, local government, UTA, and UDOT have worked cooperatively so that intelligent transportation is a seamless, integrated statewide system. The systems described above benefit not only private vehicles but also bus riders. There are also intelligent transportation systems that even more directly benefit transit system users. Automated Vehicle Location (AVL), smart card systems, and other communications improvements are among ITS applications designed specifically for the transit system. Studies have demonstrated 10 to 90 percent improvements in on-time schedule performance resulting from implementing AVL. Significant decreases in fare evasion and revenue increases results from the use of smart card systems. These and other transit ITS improvements lead to increases in ridership by making transit more efficient and convenient.

TABLE 7 - 7 ITS COST SAVING BENEFITS IN SALT LAKE COUNTY

ITS COMPONENT	ANNUAL DELAY BENEFIT	ANNUAL SAFETY BENEFIT	ANNUAL ENVIRONMENTAL BENEFIT
Incident Management Team	\$7,400,000	\$700,000	\$0
Dynamic Message Signs	\$2,900,000	\$0	\$0
Ramp Metering	\$5,800,000	\$3,300,000	\$0
Signal Coordination	\$100,000,000	\$23,300,000	\$0
Sub Total	\$116,100,000	\$27,300,000	\$35,000,000
Total	\$178,400,000		
Source: UDOT; values are approximate			

Another benefit not quantified above is the ability of ITS to provide travel information via means other than dynamic message signs. For example, even before leaving for a trip, a traveler can learn about congestion levels, transit travel times, road conditions, or construction activity through the [UDOT Traffic](#) website, via cell phone alerts, or by calling 511. Individual travel times can thus be reduced by obtaining travel information through these various technologies.

Turning attention to technologies becoming available for broader implementation in the near future, the federal government is beginning to make commitments to support “Vehicle Infrastructure Integration” (VII). This public-private initiative would provide roadside and in-vehicle technology to enable drivers to receive route guidance needed to avoid congestion. In addition, their vehicles would be equipped with crash avoidance systems. Some of these technologies are currently available on a limited basis. Within a decade or so, widespread use of these technologies could render some existing ITS technologies, such as dynamic message signs, obsolete.

Given that intelligent transportation systems are very cost-effective and essential to reducing both recurring and non-recurring congestion, thus making both transit and highway systems more reliable, it is recommended that more funding be provided to achieve the following objectives:

- Upgrade equipment and increase numbers of trained personnel to sustain and improve maintenance and operation of ITS along the Wasatch Front;
- Include the potential for Vehicle Infrastructure Integration in ITS project plans and designs;
- Continue steady, sustainable expansion of ITS, such as:
 - Connecting more signals and CCTVs to the Central System
 - Equipping more buses and trains with AVL
 - Improving accessibility of real-time and historical travel information, and
 - Increasing freeway management abilities in proportion to traffic growth.

Pavement Management

The existing street and highway system is a critical asset to the communities of the Wasatch Front Region and must be maintained in a serviceable condition. Failure to do so results in significant additional private vehicle maintenance costs to the traveling public and can compromise safety. A pavement management system is

defined as a set of tools or methods that assist decision makers in finding cost effective strategies for maintaining the state roadway system in serviceable condition. The detailed structure of a pavement management system is separated into two levels: (1) system or network; (2) and project levels.

Network level management (administrative) decisions affect the programs for the entire roadway system. The management system considers the needs of the network as a whole and provides information for a Region-wide program of new construction, maintenance, and rehabilitation. The goal of the network level is to optimize the use of funds over the entire system. The managers at this level compare the benefits and costs for several alternative programs and then identify the program/budget that will have the greatest benefit/cost ratio over the analysis period. Project level pavement management makes technical decisions for specific projects. At this level, detailed consideration is given to alternative design, construction, maintenance and rehabilitation activities for specific projects. This is accomplished by comparing benefit / cost ratios of several design alternatives, and selecting the alternative that provides the desired benefits for the least total cost over the projected life of the project. Since system level analysis provides targets for maintenance, rehabilitation, reconstruction treatments, and costs, it is necessary for the project level management system to provide additional information before designs are finalized.

Pavement maintenance is a planned program of treating pavement to maximize its overall useful life. A renewed emphasis on pavement preservation calls for private industries and federal, state and local agencies to work together to provide highway users with an increased level of quality and cost-effectiveness. Pavement preservation takes the maintenance process one step further by carefully prioritizing and coordinating maintenance activities to extend the life of a pavement. It includes preventive maintenance, corrective maintenance, and both minor and major rehabilitation. **Figure 7-5** shows the relationship between the costs and benefits of a pavement preservation program. **Figure 7-6** demonstrates the strategies of a pavement preservation program and the relationship between the serviceability over time of a section of pavement utilizing a preservation program.

All pavements require some form of maintenance due to the effects of traffic and the environment on the exposed materials. Applying a surface treatment to a pavement under light to moderate distress can greatly increase the life of that pavement. Active pavement preservation

program benefits will include the following benefits:

- The extension of the life of the pavement;
- Lower costs over time- Studies have shown that for every additional dollar spent on preventive maintenance treatments, up to \$4, \$6, or even \$10 may be saved, if more drastic rehabilitation is required at a later date due to delays;
- More predictable costs- If regular treatments are scheduled and pavements maintained, planners will be better able to predict and budget future expenditures;
- Better utilization of resources- Planning and regularly scheduling treatments allows better use of resources, including the efficient scheduling of contractors and equipment;
- Premature pavement failures- Many premature pavement failures are caused by pavement damage that goes untreated, such as water seeping into open cracks;
- Better pavement conditions – Regularly scheduled monitoring and pavement treatments keep pavements in better overall condition than random or insufficient maintenance; and
- Reduced user delays and user costs- The more extensive damage a pavement has been subjected to, the longer drivers will be delayed due to repair or reconstruction. Pavements that are in good condition reduce daily “wear and tear” on vehicles.

The Wasatch Front Regional Council, in cooperation with the Utah Department of Transportation and its member local governments, have estimated funding amounts to maintain the existing pavement system. The WFRC will continue to work with UDOT and local agencies to identify a process to obtain the most accurate information (pavement, safety/ crash, access, etc.) available to make the best use of the limited amount of available funding. The pavement data will be used by the WFRC to identify and evaluate projects for urban Surface Transportation Program (STP) funding. The next step will be to determine what data is available and the type of future data that collection is necessary as to ensure a useful process.

FIGURE 7 - 5 PAVEMENT PRESERVATION PROGRAM COST BENEFIT

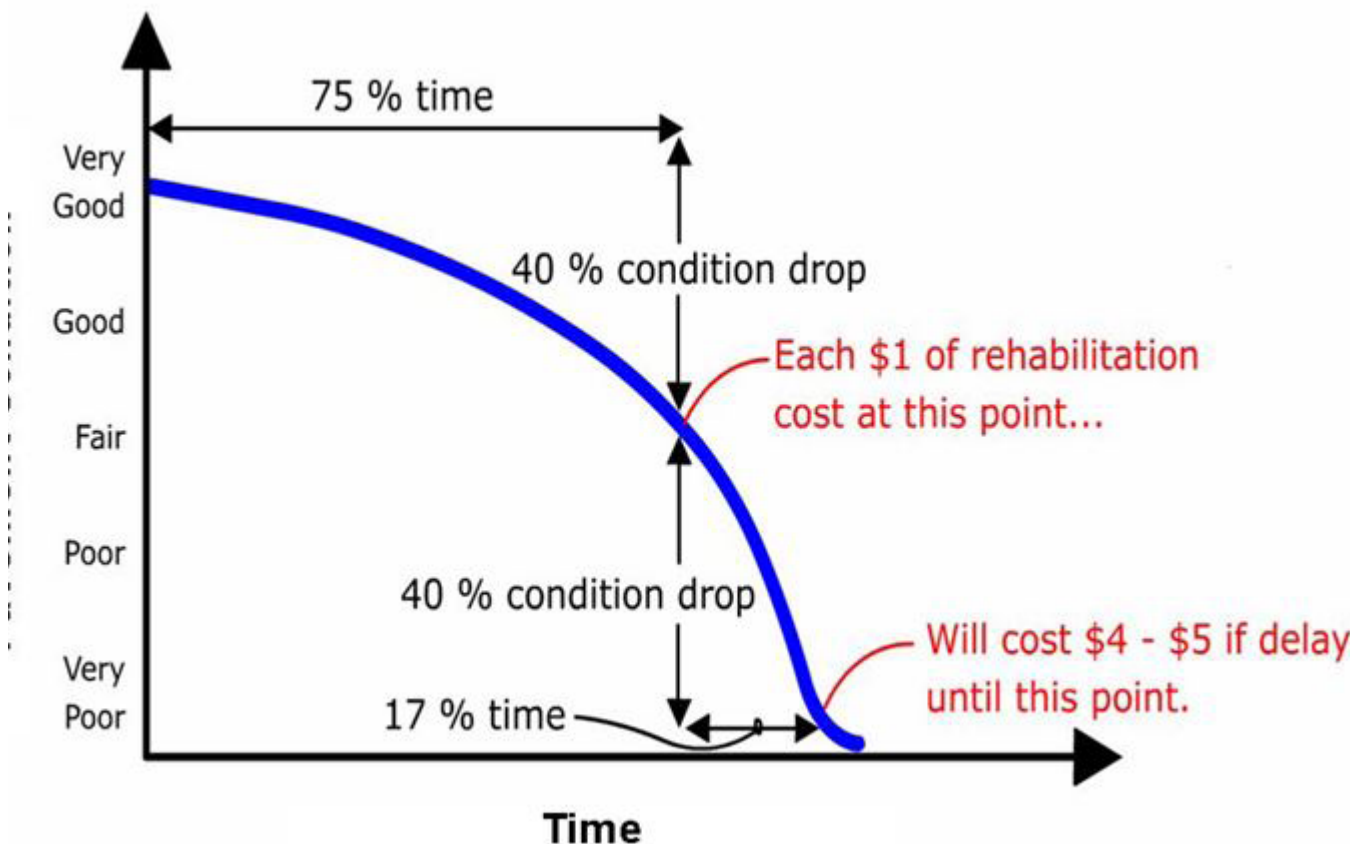
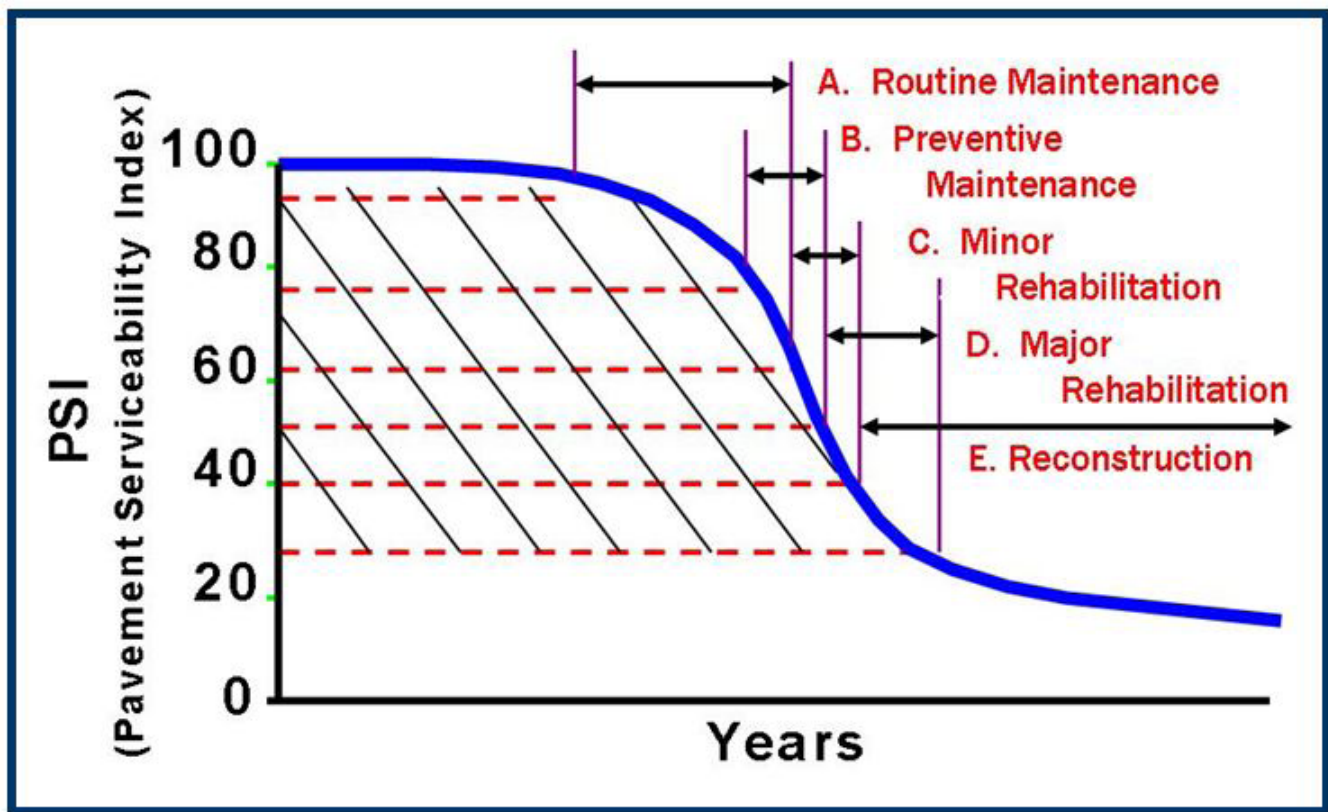


FIGURE 7 - 6 PAVEMENT SERVICEABILITY INDEX

Access Management

Roads serve two primary purposes. The first is to provide mobility. The second is to provide access. Mobility is defined as the efficient movement of people and goods. Access is moving people and goods to specific properties. Access management is a comprehensive approach to the regulation of driveways, medians, median openings, traffic signals, and freeway interchanges. The goal of access management is to limit and separate traffic conflict points. By reducing conflict, managers can increase the levels of safety and traffic operations.

With fewer new arterial roadways being constructed, the need for effective systems management strategies is greater than ever before. Improving access management is particularly attractive to planners as it offers a variety of benefits to a broad range of stakeholders. By managing roadway access, government agencies can increase public safety, extend the life of major roadways, reduce traffic congestion, support alternative transportation modes, and even improve the appearance and quality of the urban environment. Without adequate access management, the function and character of major roadway corridors can deteriorate rapidly. Failure to manage access is associated with the following adverse

social, economic, and environmental impacts.

- An increase in vehicular crashes
- More collisions involving pedestrians and cyclists
- Accelerated reduction in roadway efficiency
- Unsightly commercial strip development
- Degradation of scenic landscapes
- More “cut-through” traffic in residential areas, due to overburdened arterials
- Homes and businesses adversely impacted by a continuous cycle of widening roads
- Increased commute times, fuel consumption, and vehicular emissions as numerous driveways and traffic signals intensify congestion and delays along major roads

Not only are these adverse impacts costly for government agencies and the public, but they also negatively impact businesses located in corridors with poor access management. Closely spaced and poorly designed driveways make it more difficult for customers to safely enter and exit businesses. Access to corner businesses may be blocked by queuing traffic. Customers begin to patronize businesses with safer, more convenient access and avoid businesses in areas with poor access design. Gradually the older developed areas begin to

deteriorate, in part due to access and aesthetic problems, and investment moves to newer and better managed corridors.

After access problems have been created, they are difficult to solve. Reconstructing an arterial roadway is costly and disruptive to the public and abutting homes and businesses. Shallow property depth, multiple owners, and rights-of-way limitations common to older corridors generally preclude effective redesign of access and site circulation. In some cases, new arterial or bypass roads must be constructed to replace functionally obsolescent roadways and the process begins again in a new location. Better access management can help stop this cycle of functional obsolescence, thereby protecting both public and private investment in major roadway corridors.

REGIONAL FREIGHT MOVEMENT

The efficient movement of freight is a critical component of a healthy economy and a key indicator of a well-planned transportation system. As a crossroads area for several modes of transportation, the Wasatch Front Region plays a major role in the movement of freight across the United States. Each year, approximately 96.4 million tons of freight valued at \$42.3 billion is shipped from Utah via all modes of freight transportation. Conversely, a total of 87.7 million tons of freight arrives in Utah annually with a value of \$54.4 billion. This makes for a yearly total of 184.1 billion tons of freight shipped to and from Utah valued at \$96.7 billion. Trucks account for almost 70 percent of the Region's freight tonnage, with railroads hauling approximately 25 percent. Pipelines move about 4 percent of the remainder. Air cargo, including parcel and courier service, accounts for less than one percent of the total freight volume moved to and from Utah. **Map 7-15** shows the location of major freight terminals and railroad lines in the Wasatch Front Region.

Trucking

The trucking industry is the dominant mover of regional freight. This dominance is the result of the State's highway system, the CANAMEX Corridor, and the many freight distribution centers found at the crossroads of three Interstate highways in the northern Wasatch Front Region. Truck transportation works in conjunction with railroads, pipelines and air freight to provide efficient multi-modal transportation to Utah shippers. The Wasatch Front region is impacted by the following conditions.

- 100 percent of air cargo shipments to and from the [Salt Lake City International Airport](#) enter and leave the airport by truck. Trucking gives high-speed air cargo and next-day parcel shipments the flexibility to reach markets across the state.
- Each day 160,000 barrels of crude oil and 42,000 barrels of finished product (gasoline, diesel, etc.) arrive via pipelines at the Wasatch Front Region's five oil refineries. Of this daily total of 202,000 barrels, 95,000 leave the refineries in the North Salt Lake and Woods Cross area by truck each day. This amounts to about 500 truckloads of petroleum products being transported daily on Utah's highways.
- 100 percent of the 400 to 600 intermodal containers and "piggyback" trailers which arrive and depart daily at the [Union Pacific Intermodal Terminal](#), in Salt Lake City by train, are transported by truck to and from their points of origin and destination in Utah. Union Pacific provides the "long haul" service while trucks provide the door-to-door pick-up and delivery.
- Nearly 80 percent of all Utah communities depend exclusively on truck transportation to supply their goods.
- In 2001, 44 million tons, or 72.3 percent of all manufactured freight was transported to and from Utah by truck.
- In 2000, trucking and truck-related warehousing employed 61,844 people in Utah: this employment accounts for one out of every 17 jobs in the state.
- In 2000, the trucking industry activity contributed 4.5 percent to the State Gross Product.
- Truck usage accounted for 2.6 billion miles on Utah's public roads in 2000. This figure amounts to about 12 percent of all roadway use in the State.

Recommendations

Trucking industry representatives are quick to point out that roads designed primarily for automobile traffic will rarely be adequate for moving freight by truck. However, highways designed to move freight safely and efficiently will successfully meet the needs of motorists. Representatives of the trucking industry have identified the following specific design, recommendations to facilitate the movement of freight through the Wasatch Front Region.

- Install advanced warning for signal changes on US Highway 89 between I-15 and I-84.
- Upgrade interchanges on I-15 in North Salt Lake, Bountiful and Woods Cross to better accommodate truck traffic.
- Install a traffic signal at Redwood Road and North Pointe Drive to better accommodate truck traffic.

- Widen 5600 West to five lanes between SR-201 and I-80.
- Reconfigure the right turn radii at California Avenue and I-215.
- Lengthen merge / acceleration lanes on I-84 eastbound to I-80 westbound.
- Construct additional truck parking and staging areas in Salt Lake City's Westside industrial parks.

Railroads

Since the completion of America's first transcontinental railroad at Promontory, Utah, on May 10, 1869, railroads have played a major role in the transportation of freight in Utah and along the Wasatch Front. By 1909, when the last major segment of the nation's east/west rail infrastructure was completed, the Western Pacific and Rio Grande Railroad line between Salt Lake City and San Francisco, Utah was firmly established as the logistical "Crossroads of the West." Although still an important rail center in the 21st Century, the Wasatch Front's overall position as the west's premier rail crossroads has been greatly diminished by changes in the rail industry including the mergers of Western America's once-numerous railroad companies into two large systems. The continuing impact of this transition in Utah's rail industry on the state's economy and transportation systems is considerable.



An almost complete lack of rail competition is the most serious problem facing Utah rail service and those who depend on it. The railroad industry's inability to meet its own capital needs is a nation-wide challenge affecting rail service. As a result of these, and other rail-service-related issues, a number of key Utah industries have been diverting an increasing amount of their freight traffic away from rail and onto trucks. This rail-induced increase in truck traffic is beginning to impact a number of key

highway segments across the state. The advantages of railroad transportation are fuel efficiency, labor costs, privately owned and maintained infrastructure, a good safety record, and relatively low cost, especially for bulk commodities. The Wasatch Front Region has been and will continue to be impacted by the following railroad related factors. **Map 7-15** shows the major railroad lines within the Wasatch Front Region.

- Daily truck traffic to and from the Salt Lake City International Airport averages 140 trips each weekday.
- The average freight train carries 6,000 tons. Assuming an average carrying capacity of 35 tons for trucks, it would take 171 trucks to equal one standard freight train.
- Unit trains (i.e. one commodity trains that are not broken up to be switched en-route), which are common in Utah, can carry up to 12,000 tons of coal, not counting the weight of the cars and locomotives. The largest coal truck on Utah highways has a total carrying capacity of 43 tons; therefore it would take 279 of those oversize coal haulers to equal one unit train.

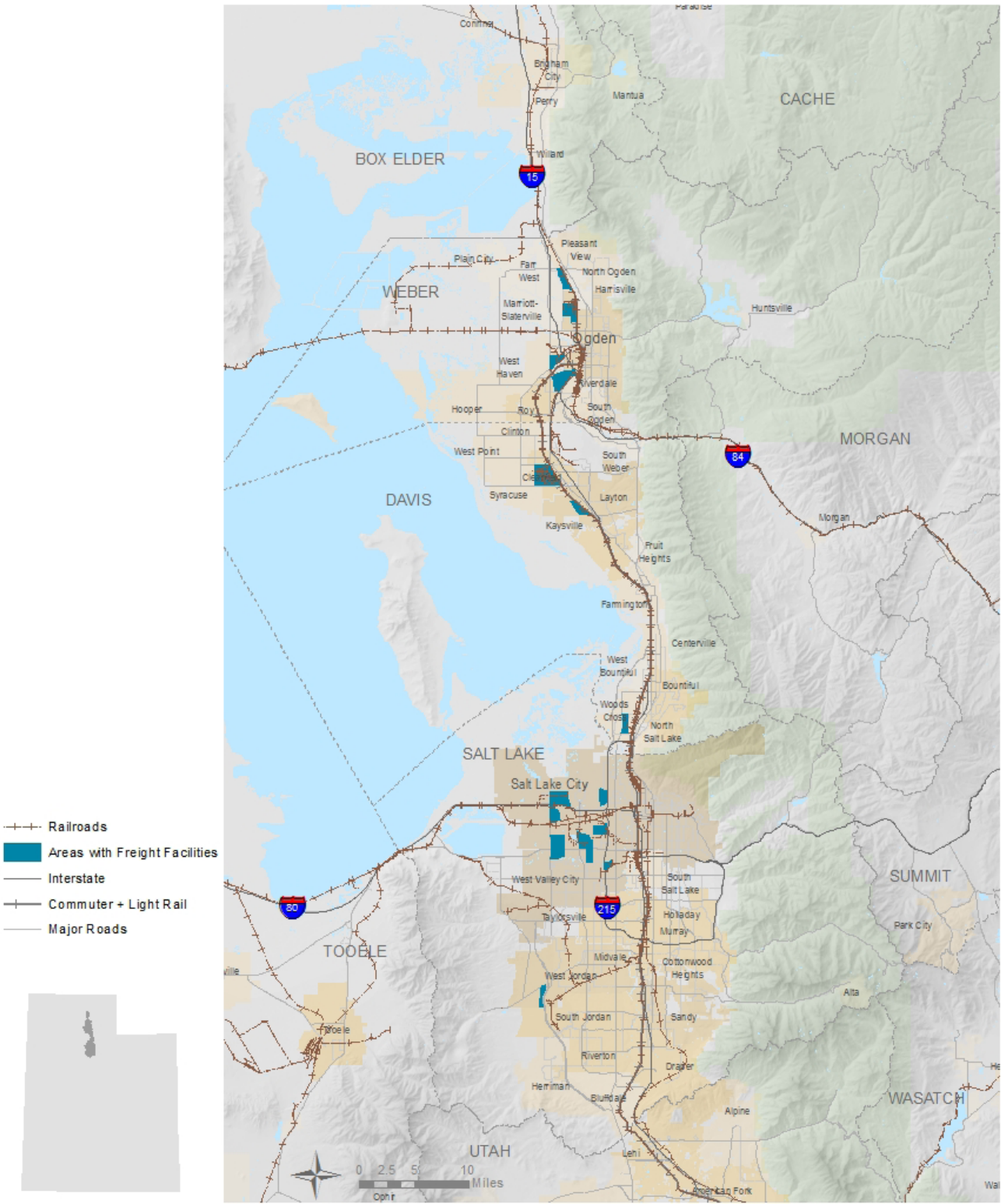
Pipelines

Pipelines work in conjunction with trucking and railroad tank car service and have a major positive impact on Utah's economy. Pipelines primarily carry liquid commodities such as crude oil and refined petroleum products. These products include gasoline, diesel and jet fuel. Solid materials, such as phosphate, can be mixed with water and also transported via slurry pipelines. Like the railroads, the pipeline industry owns, operates and maintains its own infrastructure, with no state or federal involvement in the construction and maintenance thereof. However, they are subject to regulations regarding safety, environmental protection, etc. Important issues relative to the pipeline industry in the Wasatch Front region are as follows.

- Crude oil pipelines converge on the Wasatch Front and supply five local oil petroleum refineries from oil fields as far distant as Alberta, Canada. Major sources of production are fields in Colorado, Wyoming, Montana and eastern Utah.
- Finished petroleum products also link Wasatch Front energy facilities with refineries as far away as Wyoming and Montana.
- Refined fuel products leave the Wasatch Front refineries via a pipeline extending northwest through Idaho and Oregon, terminating in Spokane, Washington. A second pipeline is nearing completion

MAP 7 - 15

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
MOTOR FREIGHT FACILITIES AND RAILROADS



between Salt Lake City and Las Vegas.

- Pipelines, working with railroad tank car service, eliminate the need for nearly 2,100 trucks that would otherwise be traveling daily on some of Utah's busiest highways. The pipelines support the state's industrial economy and tax base.

Air Freight

Air cargo is the smallest component of the freight transportation system serving the Wasatch Front Region. The [Salt Lake City International Airport](#) (SLCIA) is a major hub for Delta Airlines. Service is also provided by nine other scheduled airlines as well as three air freight/cargo carriers. In calendar year 2001, a combined total of 238,798 tons of mail and cargo enplaned and deplaned at the SLCIA.

There are two terminals designated for air cargo. One is the main cargo and mail terminal which is nearly co-located with the US Post Office at the southern end of the SLC International Airport and accessed via I-80. The second is the north terminal which is accessed via I-215. The primary users of these facilities are United Parcel Service at the north terminal and Federal Express and the United States Postal Service operations at the south terminal. Air freight/parcel traffic to and from the SLCIA is concentrated during the Monday to Friday work week, with far less traffic on weekends and holidays.

Air freight's primary advantage is speed. Therein lies the reason why Salt Lake City, with its abundant room for terminal expansion, is not a far larger air freight center. Most of the major air freight/air parcels distribution facilities are in the Central or Eastern Time Zones because most parcel movements are between the major cities in the eastern third of the nation. [FedEx](#) shipments must travel to and from their distribution center in Memphis, Tennessee each night, while [UPS](#) operates out of a hub in Louisville, Kentucky. Salt Lake City is in the wrong time zone to be attractive to air freight/air parcel shippers desirous of centralizing their operations close to major markets.

- UPS averages 30 trucks per day to and from their SLC Airport facility via Exit 25 on I-215
- Federal Express and the United States Postal Service, together, average 110 trucks to and from the SLC International Airport via Exit 115 on Interstate I-80.

Intermodal Freight Connectivity

The transferring of different types of commodities from one transportation mode to another is an important

activity of the Wasatch Front Region's freight movement system. Known as "break-of-bulk" points, these locations are where goods are transferred from one type of carrier to another, such as trailers loaded off flat cars to be pulled by trucks to their final destinations. The efficient intermodal connectivity of freight within the Wasatch Front Region will continue to increase in importance throughout the period of time considered in the 2015 – 2040 RTP. Suggested improvements to freight connectivity facilities are expressed in the following recommendations.

Recommendations

- Increase highway capacity on 5600 West serving the Union Pacific Intermodal Facility located between SR-201 and I-80.
- Improve highway access to all Wasatch Front oil refineries and the Pioneer Pipeline terminal for both standard and long combination (LCV) oil tank trucks.
- Improve access off 900 West in South Salt Lake City to the Union Pacific automobile transload facility at Roper Yard.

METROPOLITAN AIRPORTS SYSTEM

The Salt Lake City Metropolitan Airports System covers approximately 14,200 square miles, encompassing eight counties, approximately 18 percent of the land area, and 82 percent of the State's population. The system is composed of 13 airports that are home to 83 percent of the active pilots and 74 percent of the State's General Aviation airplanes. This section of the RTP provides recommendations for both the Wasatch Front Regional Aviation System (WFRAS) as a whole, and for individual airports within the WFRAS. Within the context of the 2015- 2040 RTP process, this section documents aviation related policy and regulatory recommendations for compatible development.

Compatible Development

The primary responsibility for integrating airport considerations into the local land use planning process rests with local land use planning agencies and local governments. Coordination across multiple jurisdictions to achieve airport land use compatibility is vital for successful protection and promotion of compatible development surrounding the regions airports.

As airports grow, aircraft operations increase in frequency, and the types of operations diversify. Airports grow and develop in response to increases in demand

for aviation facilities and services. Airports expand to the limits of their historic boundaries, so there is less distance between aviation uses and adjacent development. At the same time, the metropolitan area has continued to grow and demand for land has resulted in previously rural uses being converted into urban level of development, so that an airport previously located near farm fields may suddenly be adjacent to a housing development or other incompatible use.

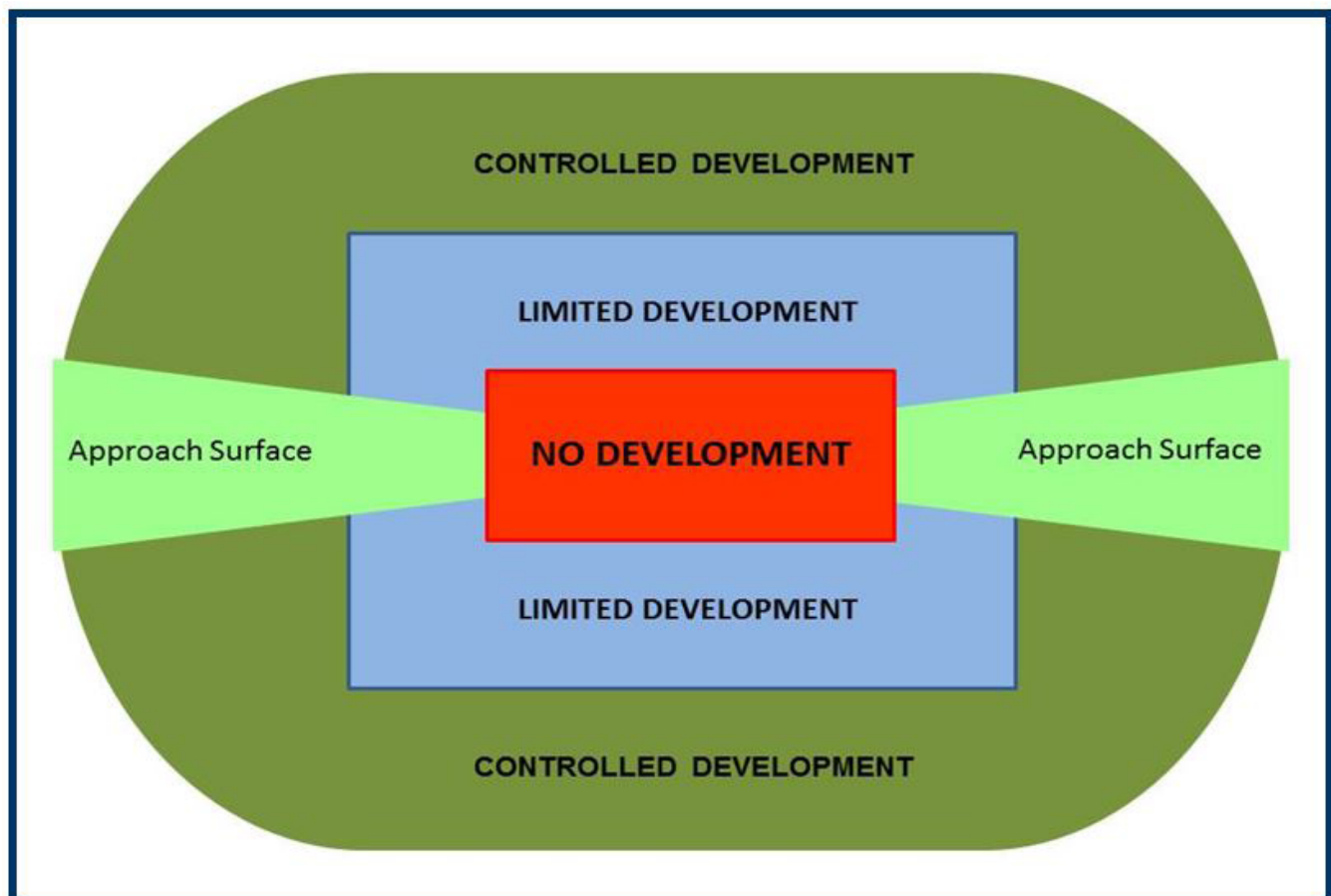
Planning and development authority for airports in the region is distributed between a large variety of participants, ranging from rural county governments to the Department of Defense. Most airports are publicly owned and operated by a local city or county who have the authority over local land use and control of the types of development possible. Notable exceptions include [Bountiful Skypark](#) and [Hill Air Force Base](#). Both Tooele and South Valley Regional are extra-territorial parcels owned by the Salt Lake City Department of Airports. As a result, establishing compatible land uses can be a complicated inter-jurisdictional process. It is recommended that airport sponsors and entities with land use control

around airports engage in cooperative aviation planning as part of the general regional planning process.

In the “Compatible Land Use Planning Guide for Utah Airports”, a planning template was developed to aid identification of sensitive lands near the airport. The ‘General Planning Diagram’ from that report has been reproduced here as **Figure 7-7**.

The ‘Approach Surface’, depicted in light green, is the FAA Part 77 approach surface, an imaginary ramp that designates the slope aircraft follow when approaching or departing the runway. The ‘No Development’ area, depicted in red, extends to the end of the runway protection zone (RPZ) and is the width of the Approach Surface at its intersection with the horizontal surface. The ‘Limited Development’ area, depicted in blue, extends either 3,200 feet, 5,300 feet, or 7,700 feet depending on approach type, beyond the end of the runway. The width is the length of the airports longest runway. The ‘Controlled Development’ area, depicted in dark green, is the area inside the FAR Part 77 Horizontal Surface for each airport. It extends 5000 feet from small airports or

FIGURE 7 - 7



10,000 feet from large airports.

Further detail regarding the geometry for each zone can be found in the “Compatible Land Use Planning Guide for Utah Airports” prepared by the Wasatch Front Regional Council. Maps for each airport in the Region, based on these zones, are presented in [Appendix N](#), entitled “Airport And Land Use Compatibility.”

Compatible Land Use

Ideally, airports should have fee simple ownership of all areas in the ‘No Development’ zone. However at many airports in the region this is not possible or practical. In these cases airports rely on local zoning ordinances to provide protection from incompatible development.

While zoning is the least effective way to ensure airport compatible land use, it is also the least expensive. When zoning for airport compatible land use, best practices include the use of a specific ‘Airport Overlay’ zone as well as changing the underlying zoning to an airport compatible use. When developing airport compatible zoning, the potential for airport expansion should also be considered. The most severe land use conflicts emerge between airports and incompatible uses when airport facilities are expanded.

It is strongly recommended that airport compatible zoning be established within the ‘Limited Development’ area, with a focus on providing airport compatible land uses; either uses affiliated with the airport, or uses not sensitive to airport noise. Residential uses should be avoided within this zone, with a strong preference to limiting the number and size of structures developed in the area along the extended runway center-line.

The area represented by the ‘Controlled Development’ overlay exceeds that which can reasonably be regulated to aviation compatible, and is provided largely as an indication of the relative extent of an airports traffic pattern airspace. In addition, FAA regulations strictly limits the development of structures over 150’ tall in this area, such as cell phone towers or wind-mills.

Individual Airport Recommendations Summary

To ease coordination with other transportation planning activities, the existing conditions, planned improvements, and projected outlook has been summarized for each airport in the WFRAS below. Each individual airports entry begins with a short description of the airport including the location, owner, and basic facility description. Current aviation activities are described, including estimates

of based aircraft, aircraft operations and planned and recommended improvement. Each airport has then been assessed in terms of surface transportation access, future ability to grow/expand, land use compatibility and general outlook. Changes in aviation uses have also been predicted.

Salt Lake City International Airport

An international commercial service airport, Salt Lake City International Airport (SLCIA) is located approximately five miles west of downtown Salt Lake City near the intersection of I-215 and I-80. SLCIA is owned by Salt Lake City and is operated by the Salt Lake City Department of Airports. It has two- four runways; two used primarily for air carrier operations, one used primarily for GA operations, and an infrequently used crosswind runway. The SLCIA serves the commercial air services needs of the majority of Utah and portions of the surrounding states of Nevada, Idaho, Wyoming, and Colorado. SLCIA also serves as an air cargo hub and accommodates a significant number of General Aviation business aircraft operations. It also has substantial business GA activity.

According the FAA 5010 data, as of 2010 SLCIA has about 366 based aircraft, of which 250 are single engine aircraft, 55 multi-engine aircraft, 46 jets, and 15 helicopters. In 2009 there were 383,838 operations, about half of which were air carrier operations. There were only 8,468 local GA operations, compared to 58,352 itinerant GA operations.

Airport surface access is easy and efficient for a large hub airport. SLCIA is served by I-80 for commercial flights and by I-215 for general aviation activities. Transit service to the airport terminal includes light rail which connects the Salt Lake City Intermodal Center along North Temple and I-80. UTA also provides bus service to SLCIA with two commuter buses to Tooele and Grantsville (453 & 454), an hourly bus to Salt Lake City Inter-modal Center (Route 550) and an hourly bus to the West Valley City Intermodal Center (Route 236).

At present, cargo facilities at the SLCIA exist on both the north and south ends of the airport. Access for air cargo facilities on the south is via the same access points as air passengers. Access to the air cargo facilities on the north is via I-215 and 2200 North. All future expansion of cargo facilities at the SLCIA is planned for the north end of the airport, and roadway access to this area of the airport is excellent. The majority of air cargo passing through the airport does not have a local origin or destination, rather it is transferred from aircraft to aircraft. As a result increases in air cargo volume have a limited impact on

the surface transportation system.

SLCIA's ability to grow and expand to meet future demand remains good. Future growth will be fueled by continued growth of the regions local population, tourism and its role as a regional and international hub for Delta airlines.

Ogden Hinckley Airport

The [Ogden Hinckley Airport](#) is a Regional GA airport located approximately two miles southwest of the Ogden City center and adjacent to I-15. The airport is owned and operated by the City of Ogden. It is a regional airport that provides direct access to nearby manufacturing and recreational sites, and is a popular refueling stop for cross country flight. The airport's service area includes Ogden and surrounding Weber and Davis Counties. It also serves as a reliever for Salt Lake City International Airport. The Ogden Hinckley Airport has three runways and an air traffic control tower which make it an ideal location for recreational, training and business flying. Finally, it supports Williams International, a firm that designs and manufactures small turbine engines for a variety of purposes, including aircraft.

According the FAA 5010 data, as of 2010 Ogden Hinckley has 289 based aircraft, of which 231 are single engine aircraft. There are an estimated 33 multi-engine, and 9 jet aircraft based at Ogden, as well as 13 helicopters and 3 gliders. Kemp Aviation recently completed a private airport along the south side of the airport, which has significantly expanded basing capacity. In 2009, there were an estimated 88,300 aircraft operations. The majority of these operations were conducted by GA aircraft.

Surface access to the airport is excellent. I-15 runs adjacent to the airport, and direct access is provided via Hinckley Drive. The Airport can also be accessed easily from a number of arterial streets in the area, including 1900 West in Roy and Riverdale Road. Planned surface transportation improvements in the area include I-15 widening, and extending Hinckley Driver between 1900 West and Midland drive.

Ogden has excellent capability to continue to grow and expand. There is sufficient available property for the development of additional apron and hangers. The area beyond the runway for the Ogden Hinckley Airport are located over roadways and interchanges, as well as some light industrial. The Monte Vista development is near the south end of Runway 3-21, and may begin to suffer noise issues if jet traffic increases.

Hill Air Force Base

A military airport, [Hill Air Force Base](#) (HAFB) is a major United State Department of Defense facility located in Davis County, approximately 20 miles north of Salt Lake City. Hill AFB is operated by the United States Air Force as a major Air Logistics Center, which is dedicated to the maintenance, repair, and testing of aircraft, including both fighter jets and transportation aircraft. It makes heavy use of the Utah Test and Training Range for these purposes. Hill AFB is the center of Utah's \$1.4 Billion defense industry, and among its top five employers, with an estimated 10,000 to 15,000 employees.

Because of HAFB's role as a maintenance and repair depot, both basing and operations fluctuate in response to the need for repair and testing. There are approximately 85 F-15's assigned to its current tenant units, some of which are currently deployed. There were an estimated 40,000 operations in 2009.

HAFB has been experiencing increasingly severe congestion over the past few years. As a secure facility, there are only a limited number of access points to the base, concentrating traffic onto roads leading to these points. As a result, there are significant roadway improvements planned near HAFB. These include operational improvements along SR-193 to the south, a new North-South road to the east of the base connecting 3000 N with I-84, and substantial widening along I-15 to the west. The I-15 widening includes an interchange connecting the base to I-15 at 1800 North in Sunset City. An enhanced bus service connecting the Clearfield Front Runner Station and the Layton Front Runner station to the south gate has also been planned.

A private developer has broken ground on the Falcon Hill aerospace research park, a new commercial facility along the western side of the base constructed on 550 acres, leased from the Department of Defense. When completed, it will include new facilities for over 6,000 of HAFB's employees, and include over 2 million square feet of new office and commercial space.

HAFB is forecast to continue to be the Air Forces' repair facility for the foreseeable future. It enjoys strong local support and access to an almost unparalleled amount of military airspace. In 2010, the United States Air Force has selected HAFB as one of the preferred sites for 3 squadrons of the new F-35 Lightning. The base has sufficient property to be able to continue to grow and expand, and a continued mission to provide training and testing facilities for combat aircraft.

Military jet aircraft are significantly louder than civilian jet aircraft. Beyond the north end of the runway, there is still significant base property, for the extended flight path which continues over the Weber River and I-84. In contrast, the blast zone at the south end of the runway is near the edge of base property. However, the Layton City General Plan map show it as an easement area, and the zoning map as agricultural uses.

Bountiful Skypark Airport

[Bountiful Skypark Airport](#) is a privately owned, public-use Regional GA airport, located on Redwood Road in Woods Cross City. The airport is six miles north-northeast of SLCIA with a single runway that serves the general aviation needs of northern Salt Lake County and Davis County. Skypark Airport provides an economical and convenient niche for a large number of single engine GA aircraft, relieving congestion at other WFRAS airports. It has become a major center for business GA Training, business basing, helicopter operations and aircraft maintenance is also present.

According the FAA 5010 data, as of 2010 Bountiful Skypark had over 200 based aircraft, including 12 multi-engine aircraft and 10 helicopters. In 2009, there were an average of 135 operations a day, (about 50,000 annual operations). Barring 500 military operations, all were performed by GA aircraft. Approximately 60% of operations are by transient GA aircraft. If local business development continues in this area of Davis County, basing demand at Bountiful Skypark Airport could exceed airport capacity within the next 10 years.

Primary access is via Redwood Road, which connects to I-215 south of the Skypark Airport, and can be easily accessed by the recently constructed Legacy Parkway. It can also be accessed from I-15 via the 2600 South exit in Woods Cross. Access to the east side of the airport is supplied by 1560 West, by way of 1100 N.

Planned surface transportation improvements near the airport include widening Redwood Road from 1100 North in North Salt Lake to 500 South in West Bountiful and grade separating the railroad crossings at 500 South and 2600 South. UCASP recommendations for Bountiful Skypark include the installation of Medium Intensity Runway Lighting (MIRL), and the construction of 50 additional Tie-downs.

Bountiful Skypark has limited potential to expand as it is restricted on all sides by urban development. The proximity of hangers and other development to the runway limit the airport ability to expand to

accommodate larger aircraft and wetlands issues constrain its ability to build additional hangers on the west side of the runway. However, the airports proximity to a large metropolitan population suggests that demand for its facilities will continue to grow. Because of the constraints, no changes in aviation uses are predicted.

South Valley Regional Airport

[South Valley Airport](#) is a Regional GA airport located in West Jordan, approximately nine miles south of SLCIA, and is an FAA designated Reliever airport. It is a publicly owned, public use airport managed by the Salt Lake City Department of airports. It has a single North-South runway.

Existing aviation uses include business-related flying, law enforcement/fire/rescue flying services, recreational flying, flight training, and air charters. The Utah Army National Guard Aviation support facility is based at the airfield, and has expanded and become more active in recent years. According the FAA 5010 data, as of 2010 there were 240 based aircraft. In 2007, this included 20 multi-engine planes, 5 jet aircraft, 5 helicopters, and 24 military aircraft. According to the Salt Lake City Department of Airports, there are currently four corporate hangars, 18 'twin' hangars, 95 'single' hangars, and 42 shade hangars.

Surface access to the airport is improving. 7800 South, which was congested during peak times has recently been widened and a new interchange at 7800 South and Bangerter Highway has been completed. 6200 South remains highly congested, and due to significant resident opposition, seems likely to continue to be for the near future. However, the intersections of Banger and 6200 South has been converted to a Continuous Flow Intersections (CFI), which has substantially improve traffic flow along and across Bangerter Highway.

Recommended development identified in the UCASP include additional hangars, a runway extension, substantial taxiway development, and perimeter fencing. The 2007 Airport Layout Plan calls for a future Runway protection zone easement, a future MALSR (Medium-intensity Approach Lighting System with Runway alignment indicator lights), and future hangars on the west side of the airport, north of the existing corporate hangars. Future surface transportation improvements are limited. Future development plans also include general maintenance and rehabilitation of existing pavements and expansion of aircraft basing facilities to accept more general aviation airplanes from SLCIA. The WFRC 2015 - 2040 RTP includes additional widening for 7000 South

as it connects into Jordan Landing Boulevard, a new interchange at 7000 and Bangerter and enhanced bus service along 6200 South.

South Valley Regional is suffering from urban encroachment. It is surrounded by residential subdivisions on all sides. The massive Jordan Landing commercial development located east of the airport buffers the southernmost extent of the airport, but there are large parcels of developable land on all sides of the airport. Similar parcels have been developed at higher than normal density.

As demand for Air Carrier runway capacity at SLCIA increases, so does the need to separate GA aviation from commercial air carriers. The Salt Lake City Department of Airports has been meeting this need by increasing GA capacity at South Valley Regional. Because of its proximity to users, there is strong demand for aviation services at South Valley Regional.

The air carrier approach to SLCIA overlays South Valley Regional, making business jets ability to use its GPS approach uncertain. On this basis, South Valley Regional is unlikely to expand as a business jet center, and can be expected to continue as a non-jet GA airport.

Wendover Airport

[Wendover Airport](#) is a National GA airport located along I-80, approximately 1 mile south east of the city of Wendover. It is a former WWII era military base which maintains two functional runways. Wendover serves as a stopover point for cross-country aircraft and the West Wendover Casinos also charter Express flights.

According the FAA 5010 data, as of 2010 there were 7 based aircraft, including 5 jet aircraft. There were an estimated 5,482 aircraft operations, of which itinerant GA composed about 65%, Local GA another 20%, and Air Taxi about 13%.

The City of Wendover is located just off I-80, and the Wendover airport can be reached almost directly by following Airport Way. The condition of the surface access road to the airport (Airport Way) is an issue of concern, and likely to require reconstruction. According the UCASP, in order to fulfill its role in the Utah Airport System, Wendover needs a runway extension, a full parallel taxiway, a MALSR, and GVGI's. Planned development is listed in the UCASP as a precision approach, a new terminal, full perimeter fencing, and extensive taxiway construction.

Wendover Airport is anticipated to continue to be able to meet increasing demand for aviation facilities as West Wendover continues to grow as a vacation and resort destination. The airport has sufficient property to grow and develop and there are currently no land use conflicts off the end of either runway.

Morgan County Airport

[Morgan County Airport](#) is a Regional GA airport located approximately 8 miles north-west of Morgan City. It is a publicly owned and operated airport, with a single runway. Morgan County serves as a regional center for gliders and ultralight aircraft.

According the FAA 5010 data, as of 2010, the Morgan airport had 76 based aircraft, including 2 multi-engine aircraft and 19 gliders. Many of the based aircraft registered at Morgan County are kit-built and experimental aircraft. There were an estimated 13,258 operations in 2009, for an average of 36 operations a day, of which 75% were local GA operations. There is also extensive glider and ultra-light activity at the airport. Surface access is provided by Cottonwood Canyon Road (5700 N) and by Willow Creek Road. Both roads reach I-84 via SR-30. As the nearby Mountain Green area continues to grow and develop, SR-30 will probably become increasingly congested, interfering with airport access. A rebuild is included in the 2011-2016 Utah Department of Transportation Surface Transportation Improvement Plan, but not widening.

UCASP recommended improvements for Morgan County Airport to match its designated role were a runway extension, a runway widening, an increase in pavement strength, a parallel taxiway, GVGI's and REILs. Recommended improvements consistent with Morgan County Airports UCASP role are not consistent with its actual development potential. Due to surrounding terrain and development, expansion of airside facilities is not feasible. Geographic constraints limited the potential approach speed (and thus size) of aircraft using that facility. As a result, the Morgan County Airport's ability to develop and handle larger planes is limited and the facility is expected to continue as a local GA airport specializing in recreational flying.

Planned improvements included additional tie-downs and additional fencing. The airport has recently developed additional hangers south of the runway on the west end of the airport.

Morgan County is experiencing increasingly severe land-use conflicts as the previously rural area becomes

a desirable location for second homes. Development in the foothills along Willow Creek Road includes several low density residential subdivision in close proximity to the runway. Continued expansion in airport operations is in conflict with expanding residential development in nearby area. The Runway Protection Zone for the south end of the runway cross the road, requiring a displaced threshold. There is existing storage and light industrial off the south end of the runway.

Tooele Valley Airport (Bolinder Field)

[Tooele Valley](#) is a Regional GA airport located five miles north-west of Tooele, Utah, and south of Highway 138. It is a public-use airport owned and operated by the Salt Lake City Department of Airports and has a single North-South runway.

Located outside the Salt Lake City Class B airspace, it is heavily used for training flights. Tooele also serves as a fuel stop for itinerant aircraft. Significant skydiving activity is also present. According the FAA 5010 data, as of 2010 there were 24 based aircraft, including one multi-engine aircraft. There were an estimated 18,744 operations in 2009, of which 2/3 were itinerant GA, and another 1/3 were local GA, for an average of about 51 operations a day.

Surface access is provided off airport road via Erda Way via Highway 36. In the future surface access to the airport may be improved with a connector from Highway 138 north of the airport. The Tooele Valley has become the preferred location for urban development spilling over from the Wasatch Front. As a result, there has been a substantial and growing need for transportation improvements, and extensive new construction is planned.

UCASP recommended improvements for Tooele Valley Airport to match its designated role were a runway extension, a rental or courtesy car, upgraded terminal and pilots lounge, and a FBO (Fixed Base Operator). Programmed capital development includes a taxi-lane, T-hangers and associated infrastructure. The airport has sufficient property to continue to grow and expand, including sufficient room for hanger development.

As demand for Air Carrier capacity at SLCIA increases, so does the need to separate GA aviation from commercial air carriers. The Salt Lake City Department of Airports has been meeting this need by increasing GA capacity at Tooele Valley. In addition, facilities have been developed to accommodate larger GA aircraft, including the installation of an ILS (Instrument Landing System).

While Tooele Valley airport lies within the SLCIA Mode-C veil, it is outside the Class B airspace. The less congested airspace and ILS approach procedure make the airport an excellent location for pilot training, flight training and related touch-and-go operations which will likely remain a regular aviation use for the foreseeable future.

Air Cargo

While Air Cargo carries only a fraction of a percent of the total freight tonnage, it fills a special niche in Utah's freight system. Air cargo's primary advantage is speed. Air cargo makes it possible to get mail and cargo to distant locations in a matter of hours rather than in days. From urgently needed replacement parts for mining equipment to fresh fish, air freight is a key component in Utah's supply chain. According to the [Economic Development Corporation of Utah](#) (EDCU), Utah air cargo volumes have been growing at an average annual rate of 9%.

According the [Federal Aviation Administration](#) (FAA) data domestic air cargo Revenue Ton Miles declining over 17 percent in 2009, partially as a result of new security restrictions. However, the FAA forecasts air cargo demand to continue to grow in sync with economic growth. According to the FAA Forecast Fact Sheet (FY '10-'30), the cargo fleet increases from 854 aircraft in 2009 to 1,531 aircraft in 2030, an average increase of 2.8 percent a year. However, this increase is contingent, assuming that the shift from air cargo to truck relay has stopped. In response to increased security measures for air cargo, a specialized system of ground transportation based on truck relays has become an important cargo mode, one that is nearly as fast as air cargo, but at a lower price.

Utah Air Cargo Commodities

In addition to mail and contract traffic, air cargo includes a wide variety of additional commodities. According Utah Department of Transportation's 'Freight Report' an estimated total of 198,490 tons of air cargo transited to or from Utah airports in 2007. Of this cargo 125,995 tons were outbound (exports from the state) while 72,494 tons were inbound (imports to the state). The tons of air cargo inbound to the state is 58 percent higher than the tons of air cargo leaving Utah. Only three tons of cargo are estimated to travel within the State of Utah by air. [Table 7-8](#) lists the inbound, outbound, and total tons of air cargo commodities by type for Utah in 2007.

In 2007, the 'Mail or Contract Traffic' commodity constituted the largest tonnage for both inbound and outbound traffic. 'Machinery' was the only category where inbound tons exceeded outbound tons. The 'Pulp\

TABLE 7 - 8 2007 AIR CARGO TONS BY COMMODITY IN UTAH

COMMODITY	INBOUND TONS	OUTBOUND TONS	TOTAL TONS	% OF TOTAL
Mail \ Contract Traffic	18,706	23,249	41,956	21%
Chemical Products	7,157	20,990	28,146	14%
Misc Mixed Shipments	9,517	13,051	22,568	11%
Machinery	12,569	7,650	20,219	10%
Transportation Equipment	5,023	11,327	16,350	8%
Electrical Equipment	3,635	10,679	14,313	7%
Farm Products	1,438	8,130	9,568	5%
Pulp\Paper Products	1,672	9,008	10,680	5%
Instruments, Photo\Optical Equipment	1,558	6,717	8,275	4%
Printed Matter	3,042	5,544	8,586	4%
All Other	8,178	9,651	17,829	9%
Totals	72,495	125,996	198,490	100%

Note: Percentage totals may not total 100% due to rounding.

TABLE 7 - 9 PROJECTED 2040 AIRP CARGO TONS BY COMMODITY IN UTAH

Commodity	INBOUND TONS	OUTBOUND TONS	TOTAL TONS	% OF TOTAL
All Other	14,479	19,258	412,603	50%
Machinery	67,947	15,774	83,721	10%
Misc Mixed Shipments	32,318	48,279	80,597	10%
Chemicals Or Allied Products	14,475	35,301	49,777	6%
Electrical Equipment	24,543	23,224	47,768	6%
Instruments, Photo Equip, Optical Equip	8,482	34,641	43,123	5%
Mail Or Contract Traffic	14,329	20,834	35,163	4%
Pulp, Paper or Allied Products	2,202	20,729	22,931	3%
Transportation Equipment	10,564	11,824	22,389	3%
Farm Products	0	13,878	13,878	2%
Printed Matter	7,200	6,057	13,257	2%
Total	196,539	249,799	825,207	100%

Note: Percentage totals may not total 100% due to rounding.

Paper Products' commodity had the highest ratio of inbound to outbound tons. [Table 7-9](#) shows projected changes in commodity tonnages for the State of Utah and the projected percent of total tonnages in 2040.

Air cargo transported within Utah is projected to grow at an average rate of over 4 percent annually and the types of commodities carried are expected to become more varied. In 2007, the top three commodities were estimated to account for 46 percent of air cargo, while in 2040 they are projected to account for only 26 percent. The percent of air cargo falling under the 'All Other' category is projected to increase from 9 percent in 2007 to 50 percent in 2040. 'Mail or Contract Traffic' made up 21 percent of Utah air cargo tonnage in 2007, while in 2040, it is project to fall to only 4% of the total. The

inbound tonnages of 'Instruments, Photo Equipment, Optical Equipment' and 'Machinery' are projected to grow over 400%, and over 500% for 'Electrical Equipment'. The 'Instruments, Photo Equipment, Optical Equipment' commodity is projected to increase outbound tons by a much larger percentage than any other commodity.

Salt Lake City International Airport Air Cargo

Convenient air freight service from the Salt Lake City International Airport puts shippers within hours of any point in the nation, Canada and Mexico. The FAA 'All-Cargo Data' shows the SLCIA handled over 449,267 tons of cargo in 2009.

Currently within the US, the majority of parcel movements are between the major cities in the eastern third of the nation and as a result, major air freight/parcels shippers located distribution centers in close proximity to their markets. For example, FedEx shipments must travel to and from their distribution center in Memphis, Tennessee each night, while UPS operates out of a hub in Louisville, Kentucky. However, as inter-mountain west and west coast cities continue to grow and develop, it is likely that demand for air cargo facilities in the west, including the SLCIA will continue to increase.

There are two terminals designated for air cargo, one at the south end of the airport, and one at the north end of the airport. The southern air cargo terminal serves is primarily devoted to air mail and serves [Federal Express](#) (Fed-Ex) and the [United States Postal Service](#) (USPS). Federal Express and the United States Postal Service, together, average 110 trucks to and from the SLCIA via Exit 115 on Interstate I-80. The northern terminal is primarily used by the [United Parcel Service](#) (UPS). It is accessed by I-215. UPS averages 30 trucks per day via Exit 25 on I-215. The vast majority of air freight/parcel traffic to and from the SLCIA is concentrated during the Monday to Friday work week.

SAFETY RECOMMENDATIONS

The 2015- 2040 RTP supports the goals and objectives of the [Strategic Highway Safety Plan](#) prepared by the Utah Department of Transportation in March 2013. The goal of the SHSP is to reduce serious injury crashes and fatalities. The SHSP analyzes highway crash data for the State of Utah and identifies contributing factors and mitigation strategies related to highway crashes. UDOT identified 11 principles as areas of emphasis to reduce serious injury crashes and fatalities.

The 11 principles below each have an element of driver behavior so it is fitting that the first principle identified is Public Outreach and Education. The second principle identified is Roadway Departure Crashes and research shows that these crashes are predominantly in the rural areas of the State. The remaining principles listed, however, are very much a concern in the urbanized areas covered by the 2015- 2040 RTP. Promoting education to the driving public about the crash related driving behaviors listed below can have a significant impact at improving highway safety.

- Public Outreach and Education
- Roadway Departure Crashes

- Use of Safety Restraints
- Impaired Driving
- Aggressive Driving
- Drowsy Driving
- Distracted Driving
- Intersection Safety
- Teen Driving Safety
- Motorcycle Safety
- Speed Management

HOMELAND SECURITY RECOMMENDATIONS

Similar to safety, security plays a significant role in the development of a regional transportation plan. While many improvements to the transportation system will impact both safety and security the Regional Transportation Plan more directly addresses security of the transportation system in several ways. The recommended plan includes improvements at choke points, increased multimodal redundancies within the system, capacity expansion, enhancement of the Intelligent Transportation System program and continued coordination, training and exercising of regional emergency preparedness plans. The 2015- 2040 RTP recommends choke point improvements on I-80 and SR-201 in Salt Lake County and on the I-15 corridor in Box Elder, Weber, Davis and Salt Lake Counties. In Box Elder and Weber Counties the RTP calls for two additional freeway lanes to be added to I-15 and an additional HOV lane to be added in north Davis and South Weber Counties. In Salt Lake County, as well as adding collector–distributor facilities to I-15 from 7800 to 10600 South and operational improvements for the length of the county, it is recommended that capacity improvements be implemented on eastbound I-80 and westbound SR-201.

To increase the redundancy and multimodal aspect of the transportation system the RTP recommends a considerable increase in transit. High capacity transit is extended north from Ogden to Brigham City and planned for within Ogden City, Streetcar service is planned for Salt Lake City and Sugarhouse and an LRT extension proposed from Draper City into Utah County to the south. Bus Rapid Transit lines are included in the RTP for the Ogden Central Business District, and extend south from Weber County through Davis County to Salt Lake County. The BRT lines will connect growth centers, employment areas and residential neighborhoods. BRT is also planned to serve several other major corridors throughout the Region.

System capacity expansions have also been recommended in the RTP. As mentioned above, capacity has been added to the system with the expansion on I-15 in Box Elder, Davis and Weber Counties and in Salt Lake County with operational improvements. Freeway capacity improvements are also included for State Route 201 and I-80 in Salt Lake County and US-89 in Davis County. A new four lane north-south facility paralleling I-15 is planned for the west side of Weber and Davis Counties, as is an eight lane facility (Mountain View Corridor) for the west side of Salt Lake County. Additionally, improvements are recommended for 20 significant east-west corridors and 10 north-south corridors in the Region.

Planned improvements for the Intelligent Transportation System (ITS) program are certainly a vital component to maintaining and improving the security of the regional transportation system. The RTP recommends expansion of variable message signs and closed-circuit television (CCTV) coverage across the Region and includes continued improvements to ITS communications networks for both highway and transit.

In addition to the physical transportation infrastructure the 2015- 2040 RTP recommends continued collaboration with the State Department of Public Safety Division of Homeland Security, UDOT, UTA, municipalities and counties, and private sector organizations throughout the Wasatch Front Region in the development, coordination, refinement, training and exercise of emergency preparedness plans.

TOOELE COUNTY

In November, 2004 Grantsville City, Tooele City, and [Tooele County](#) established the [Tooele Valley Rural Planning Organization](#) (RPO) in order to cooperatively plan transportation system improvements and priorities for the eastern portion of the County. UDOT has funded most of the work of the WFRC staff in assisting the local jurisdictions in developing plans and establishing priorities. Both UDOT and UTA have been active participants in the RPO process. One of the principal products of this effort is the [Tooele Valley Regional Long Range Transportation Plan](#), completed in October, 2006. This plan addresses highway and transit capacity needs and also contains recommendations related to bicycle facilities, safety, and intelligent transportation system improvements. An extensive needs assessment was conducted, including input from the general public and elected officials. Also, several alternatives were evaluated in determining how best to serve traffic moving to and

from Salt Lake County. **Map 7-16** includes both project type and phase of the highway projects recommended in the Tooele Valley Regional Long Range Transportation Plan.

Recommendations

The Tooele Valley Plan includes the following specific recommendations:

- Construct an additional north-south high-speed facility in the Tooele Valley to address the demand for travel to and from Salt Lake County. An environmental study of the preferred corridor is currently underway
- Triple peak period transit service between the Tooele Valley and Salt Lake County
- Construct several other highway capacity improvements called for in the Plan to address travel demand within the Valley
- As population and employment reach sustainable thresholds within Tooele Valley, increase local bus service

MORGAN COUNTY

With the support of the Morgan County Council and the Morgan City Council, the Regional Council began a study of transportation needs in [Morgan County](#) in July 2006. With the assistance of City, County and UDOT staff, the Regional Council prepared a comprehensive review of transportation needs and proposed improvements. Since that time, the Regional Council has helped fund, and provided staff support for a visioning process to help guide growth in Morgan County. Subsequently, in 2010, the Regional Council gave financial support for an update of the Morgan County Master Plan, based on the visioning process completed earlier. The following is a list of recommendation from the Morgan Visioning Study.

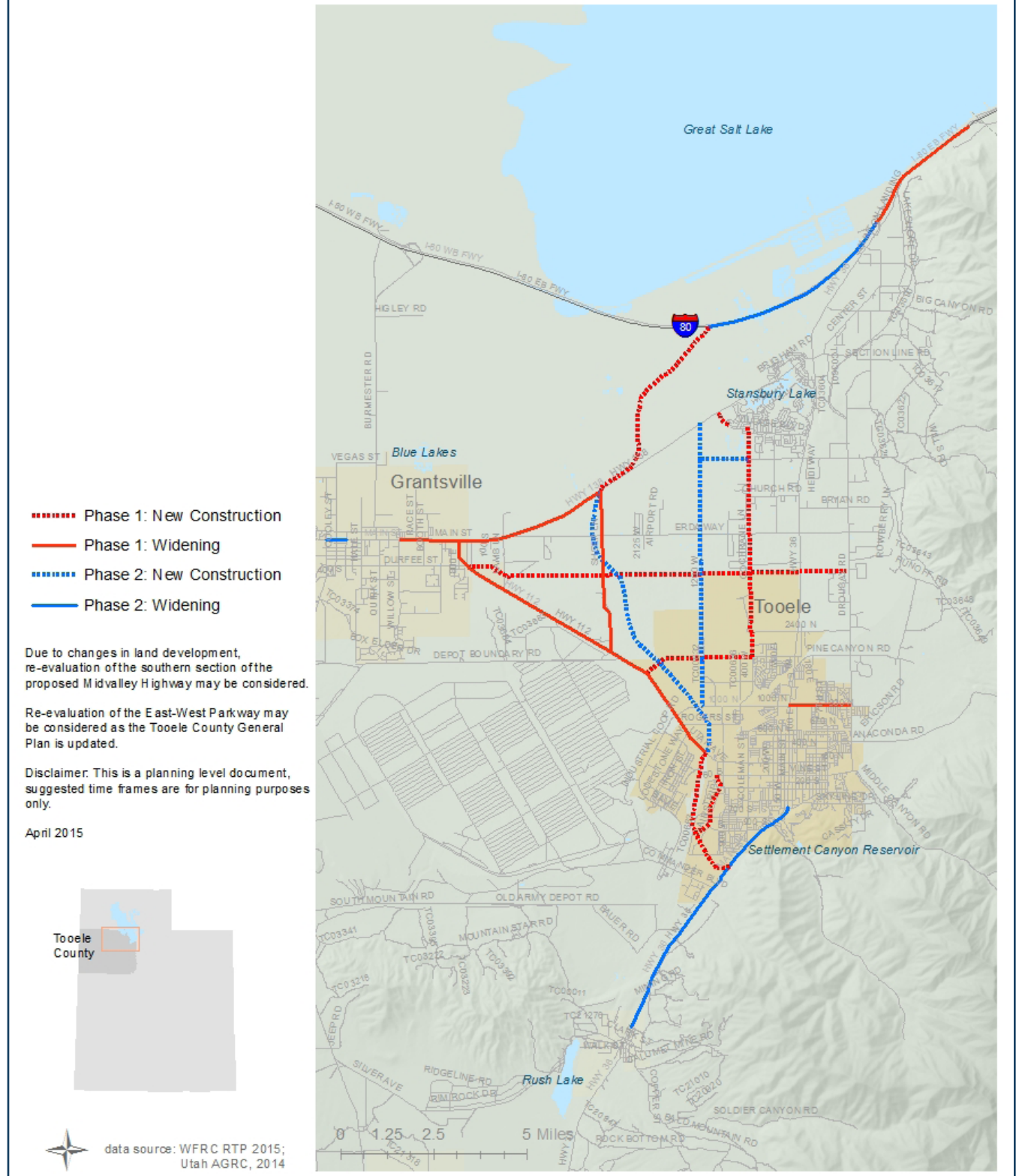
Recommendations

The Morgan County Plan includes the following specific recommendations:

- Maintain a long-term, regional perspective to ensure quality of life for future generations.
 - Prioritize and coordinate implementation activities
- Measure the progress of Envision Morgan implementation
- Update county and city general plans to ensure consistency with Envision Morgan

- Develop specific ordinances to implement the Vision
- Guide growth into preferred locations, specifically in already established town centers
- Work toward focused resort centers that make the most of Morgan County's natural amenities without unduly sacrificing them
- Guide growth into efficient patterns emphasizing complete streets and walkable communities
 - Create water efficient landscaping standards
 - Require an impact analysis of proposed real estate development projects.
 - Determine acceptable impact standards
- Conserve open lands for future generations through the creation of a complete data set identifying existing open lands, soils, wetlands, geologic hazards, historically or culturally significant areas, the proximity to land already preserved by federal, state or local or other conservation agencies, and other significant evaluation criteria
- Focus growth in mixed-use neighborhoods and communities
 - Create zoning ordinances that encourage blending a variety of uses and housing types in Morgan City and the unincorporated community of Mountain Green
 - Create neighborhood centers and focus growth around them
- Create a variety of housing options to meet the needs of people of all income levels, family types and stages of life
 - Create flexible zoning codes that encourage a range of housing sizes and types
 - Replace minimum lot sizes requirements with net density standards
 - Consider incentivizing major developments to provide affordable housing
- Use growth tools that allow for real estate development while permanently preserving open lands
 - Adopt a policy encouraging conservation easements
 - Adopt zoning codes that allow clustering of development while retaining overall density requirements
 - Implement a program to facilitate the appropriate transfer of development rights.
- Expand economic and educational opportunities. Seek out, embrace and invest in opportunities for economic growth
 - Conduct an economic baseline analysis
 - Develop a method for measuring progress toward achieving desired outcomes
 - Identify and prioritize sites that should be reserved for employment uses
- Provide recreational opportunities for residents and tourists alike
 - Provide public access to land for a range of recreational uses
 - Create strategies to work with private landowners envisioning resort development or other recreational land uses

MAP 7 - 16

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN
DRAFT 2040 HIGHWAY PHASING: TOOELE COUNTY



PLAN IMPACTS AND BENEFITS

Identify the benefits of planning for the future.

INTRODUCTION

The Wasatch Front 2015 – 2040 Regional Transportation Plan was evaluated to determine its social, economic and environmental impacts and how well it would meet the transportation needs of the Region through the year 2040. The goals and objectives for the 2015 – 2040 RTP, as discussed in the “Goals and Objectives” section of the chapter titled [Overview](#), helped form the basis for this evaluation. The 2015 – 2040 RTP was also analyzed with regard to its conformity with state air quality plans, potential mitigation measures to minimize project impacts, and other factors.

The emphasis of these evaluations was to identify issues that could prevent the implementation of recommended projects or would need to be addressed further in the preliminary engineering phase of project development. In addition, the evaluation considered locations where congestion is still expected to exist in 2040, even with implementation of the recommended 2015 – 2040 RTP highway capacity improvements and transit system improvements. This facet of the evaluation process is important in that it will encourage planners to continue pursuing strategies that could be considered for reducing or eliminating congestion at these locations.

REGIONAL PERFORMANCE MEASURES

Among the tools used to assess the system-wide impacts and benefits of the draft 2015 – 2040 RTP was the report card measures used previously to compare each of the four alternative scenarios and the Draft Preferred Scenario. **Figures 8-1 through 8-11** below compare the draft 2015 – 2040 RTP to the [2011 – 2040 RTP](#) and, as needed, to current conditions. The performance measures were carefully chosen to give decision makers the opportunity to compare how well the 2015 – 2040 RTP supports their values and goals. The goals represent selected [Wasatch Choice for 2040 Growth Principles](#) and goals from [UTA](#) and [UDOT](#). Information relevant to the interpretation of these bar graphs is provided in the statements below.

- The primary target goal of the measure is provided

in the upper left corner. A brief description of the measure is included under each graph.

- The Orange graph bars indicate that higher measures are better and blue graph bars indicated that lower measures are better.
- The “Current” scenario represents 2016 conditions, whereas the remainder of the scenarios represent 2040 conditions.
- In large part, the performance measures represent the draft that was made available for public comment in January, 2015. The result of public input were considered by decision-makers and changes were made to the funded list of highway and transit projects.
- The 2015 – 2040 RTP land use projections were used to assess both the 2011 – 2040 RTP and the 2015 – 2040 RTP in order to isolate the benefits and impacts of the transportation system.

The accessibility provided by the 2015 – 2040 RTP road network is substantially better than that of the previous, 2011 – 2040 RTP. The accessibility of the 2015 – 2040 RTP transit network is about 1 percent less than that of the 2011. Among the factors influencing accessibility is the number of transportation facilities in the RTP. The 2015 – 2040 RTP has fewer major transit facilities than the 2011 – 2040 RTP transit network. However, the 2015 – 2040 RTP dedicates a significant amount of money to more local bus service and more hours of service on the existing rail network which would dramatically improve access.

Transit use and travel time by car are, in some respect, both measures of mobility. Transit use increases substantially in both the 2011 – 2040 RTP and the 2015 – 2040 RTPs, as compared to current ridership. However, total ridership on major transit facilities drops slightly in the 2015 – 2040 RTP as compared to the 2011 RTP due to fewer large facilities. However the 2015 – 2040 RTP provides a pool of funds dedicated to local bus and better hours of service on existing rail in the 2015 – 2040 RTP which has the potential to substantially improve ridership. Average travel time by car is considerably better in the 2015 – 2040 RTP than both existing conditions and what was forecasted for 2040 in the 2011 – 2040 RTP.

Several of the evaluated performance measures, such

as travel time and air quality (mobile emissions) affect economic vitality. However, one of the most direct measures is truck freight travel times from seventeen of the Regions' largest freight centers to the interstate freeway system. The 2015 – 2040 RTP decreases travel time on these routes because they were specifically targeted for improvements where warranted by delay. The WFRC staff will continue to monitor these routes and seek to keep traffic flowing in an effort to improve the Region's economic vitality.

Cost efficiency is a key measure for the 2015 – 2040 RTP. Transportation needs are substantial and on-going. Cost efficiency measures how effective the RTP is meeting our objectives. One of the key objectives is providing timely transportation access to jobs and higher education opportunities. Therefore, access is selected as the numerator for this performance measure. Other objectives were also assessed on a cost basis. Although not discussed here, these show similar patterns. Both the highway and the transit networks in the 2015 – 2040 RTP are more cost effective than the 2011 – 2040 RTP.

The largest source of auto emissions in the Region is the number of auto trips taken regardless of length traveled. At the beginning of a trip, when a car's catalytic converter is not warmed up and functioning, the majority of the emissions are released. It is estimated that the first few miles of these "cold starts" produce 80 percent of the entire emissions attributed to a trip. Other causes of travel emissions include idling, the number of vehicle miles traveled and high or low speed travel. These later two causes are those captured by the regional travel model and reflected in the emissions and energy use charts above. The 2015 – 2040 RTP provides significant improvements in energy use and modeled travel related emissions. Although not forecastable, attention was paid to limiting the potential for cold starts when developing the 2015 – 2040 RTP. For example, walk access to transit is far preferable to those requiring even a short park-and-ride trip.

When transportation projects are constructed, they can directly impact natural resources such as wetlands and conservation preserve areas for endangered species. Transportation projects can also indirectly impact these resources by increasing access, and therefore development pressure on sensitive lands, especially if these sites are not otherwise protected. Both direct and indirect impacts of transportation projects to the Regions' significant natural resource areas were assessed as part of the planning process.

Direct impacts were estimated using a computer mapping

of both natural resources and of placeholder project locations. Direct impacts can frequently be reduced based upon specific project conditions. It should be noted that major projects, or projects potentially impacting significant resources, undergo environmental impact analyses to determine if natural resource impacts can be mitigated and to develop plans for doing so. There is about a ten percent increase in weighted impacts of the 2015 – 2040 RTP as compared with the 2011 – 2040 RTP. Most of the new concerns had to do with drinking water recharge areas and to wetlands. It appears that some of the new impacts to the drinking water recharge areas were due to a more detailed RTP road network in southwest Salt Lake County. Some of the new projects with significant cumulative impacts to wetlands are in Box Elder County, which was not part of the planning area for the 2011 – 2040 RTP.

The indirect impacts of each of the transportation scenarios were estimated by first identifying the major unprotected, natural resource areas in the Region using computer mapping, and then by applying the travel demand model to assess the increase in access to, and therefore the development pressure upon, these resource areas. The resulting estimated development pressure from the 2015 – 2040 RTP is virtually the same as that of the 2011 – 2040 RTP.

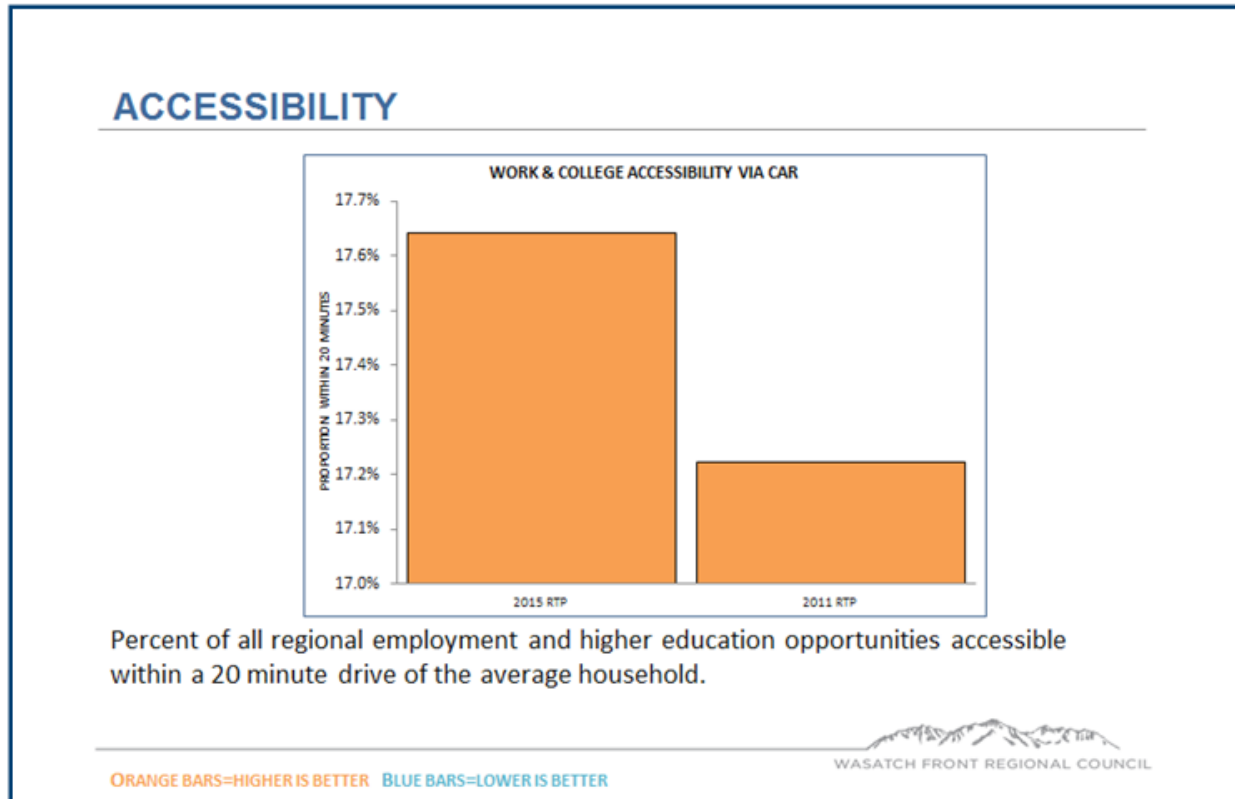
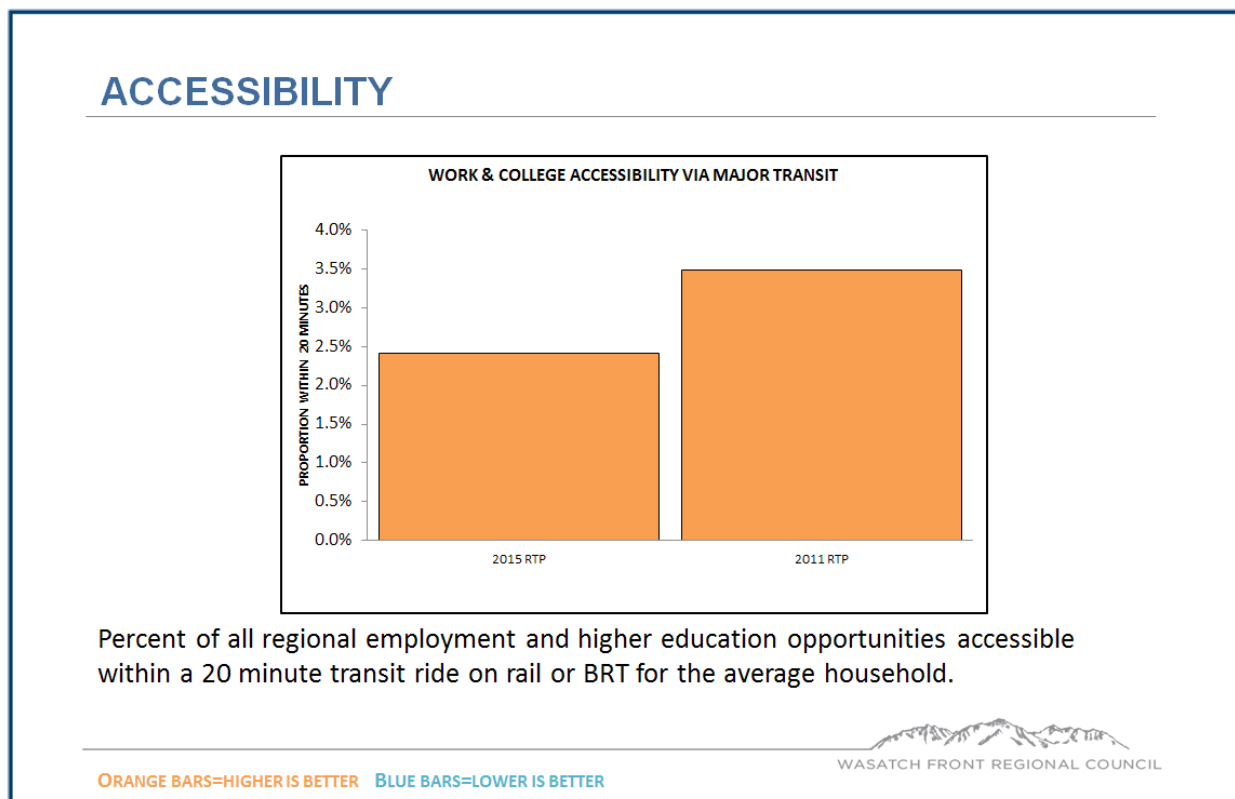
FIGURE 8 - 1 WORK AND COLLEGE ACCESSIBILITY–AUTO

FIGURE 8 - 2 WORK AND COLLEGE ACCESSIBILITY–TRANSIT


FIGURE 8 - 3 **SELECT MOBILITY COMPARISON—TRANSIT USE**

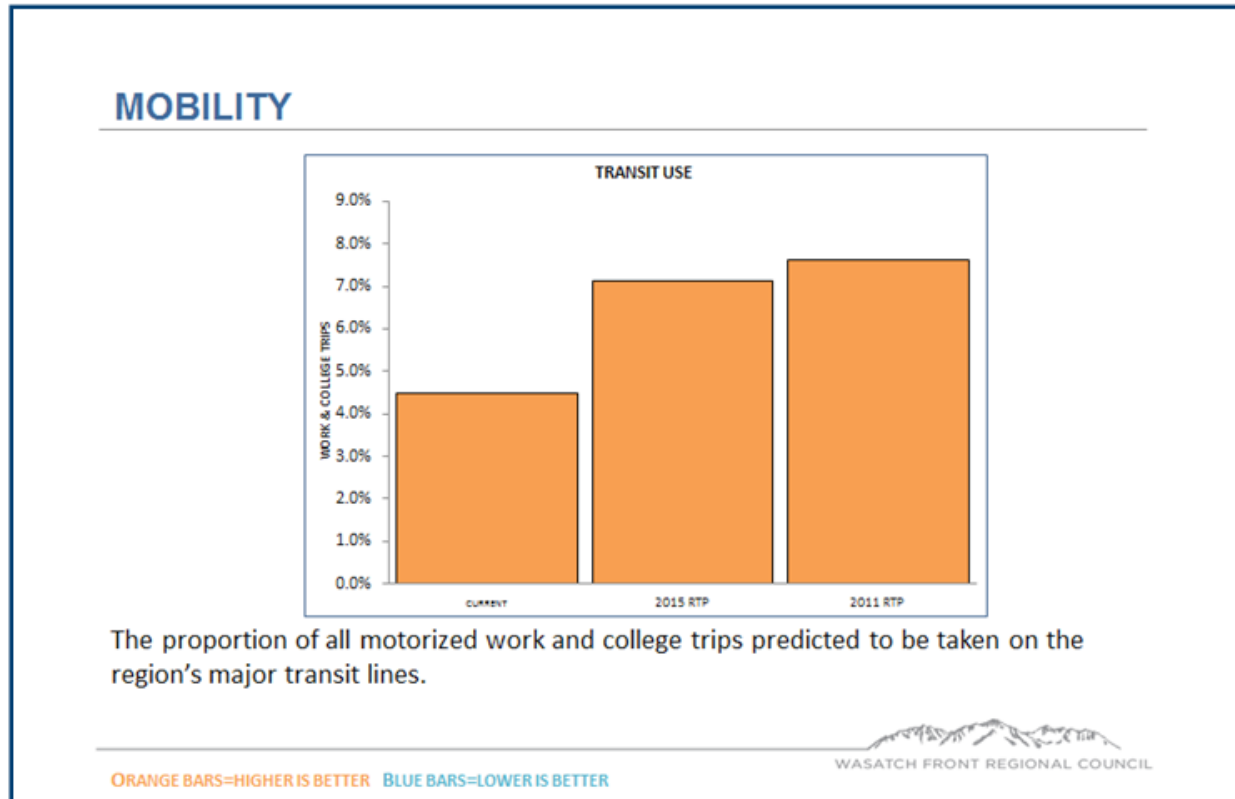


FIGURE 8 - 4 **SELECT TRAVEL TIME COMPARISON—AUTO**

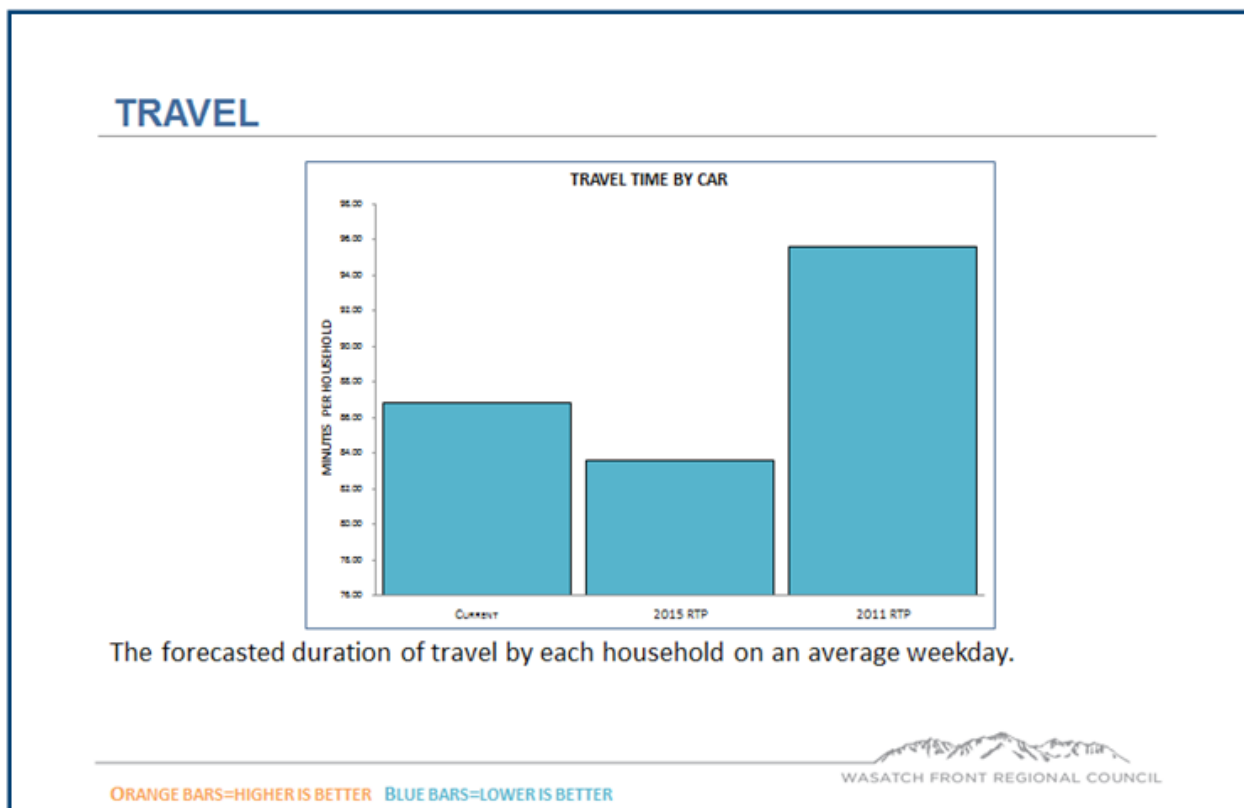


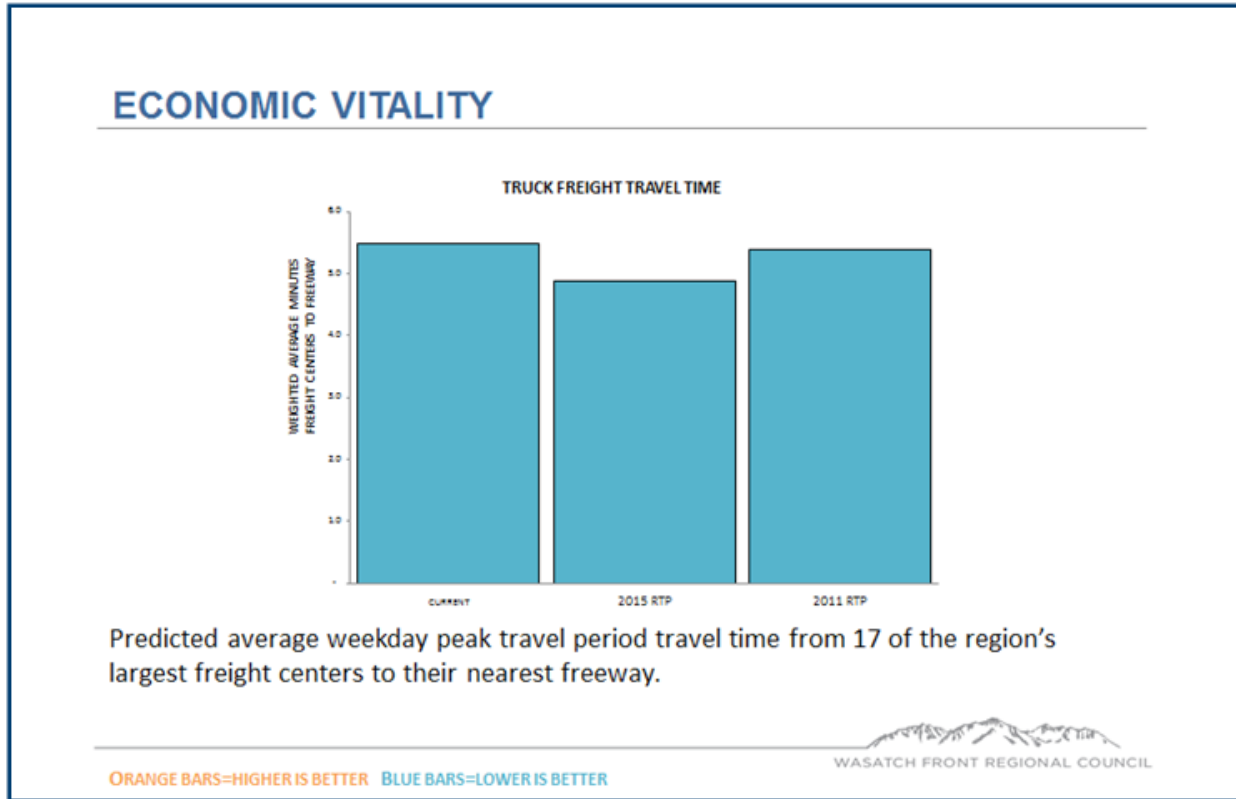
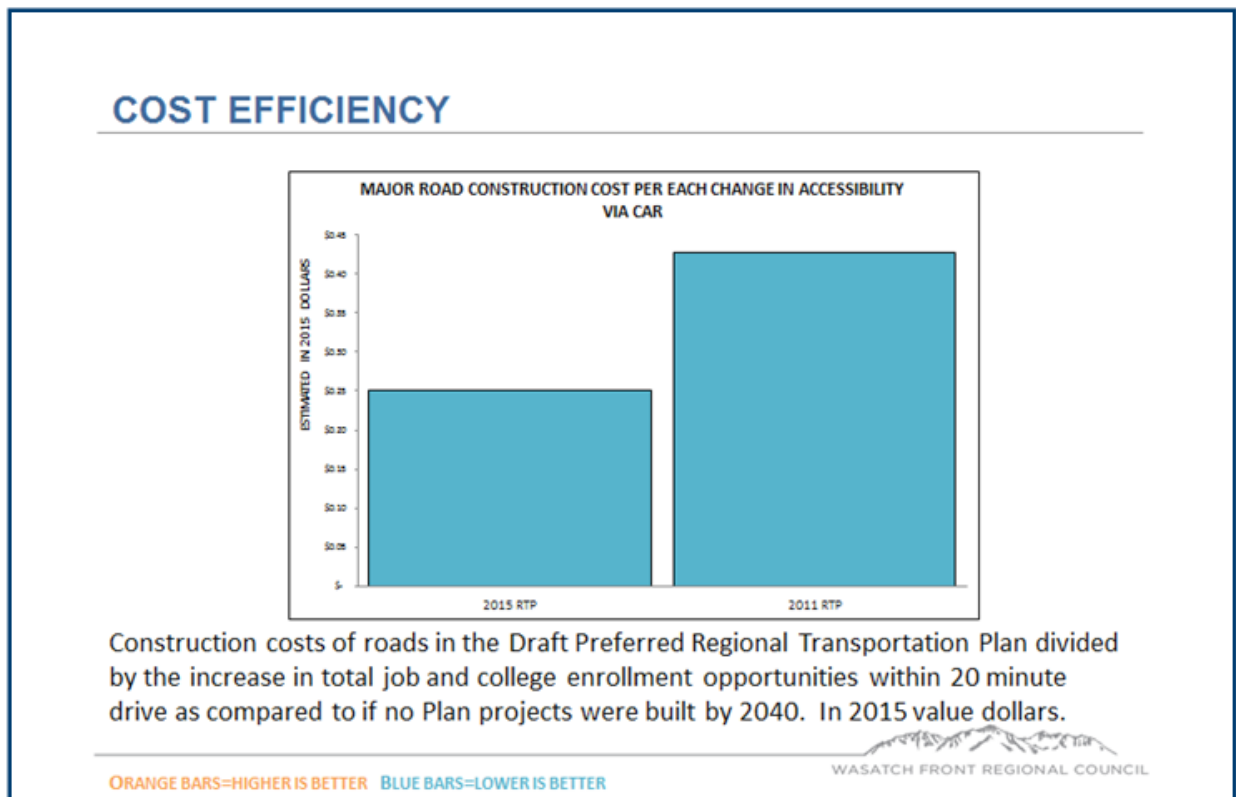
FIGURE 8 - 5 TRUCK FREIGHT TRAVEL TIME COMPARISON

FIGURE 8 - 6 MAJOR ROAD COST PER CHANGE IN HIGHWAY ACCESS


FIGURE 8 - 7 CONSTRUCTION COST PER CHANGE IN TRANSIT TRIP

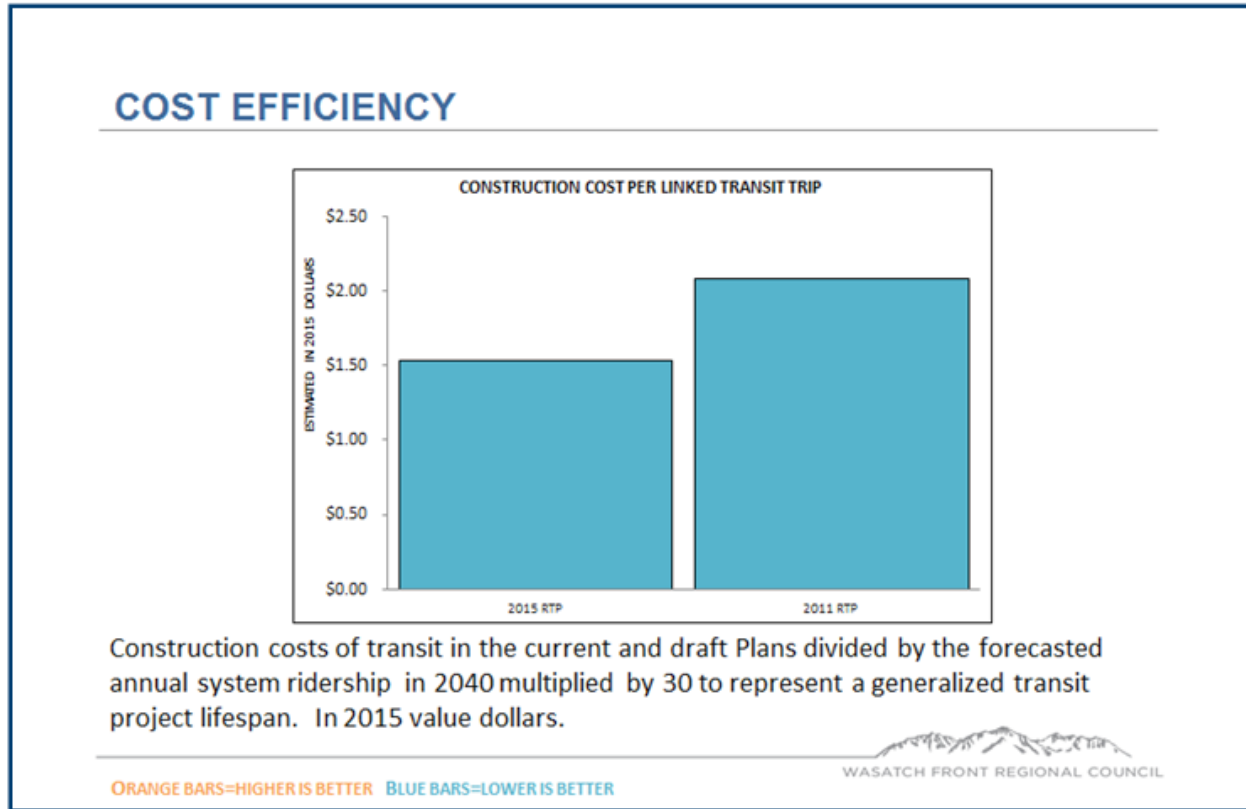


FIGURE 8 - 8 MOBILE EMISSIONS

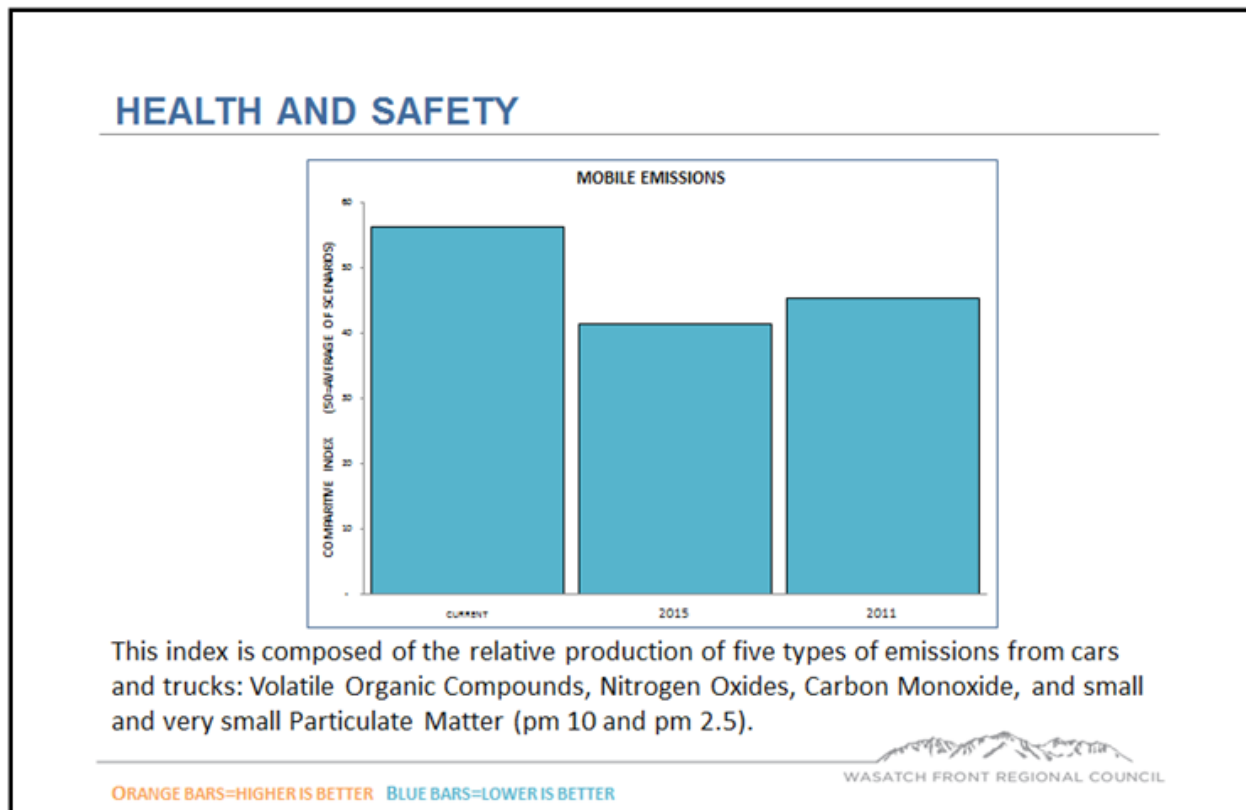


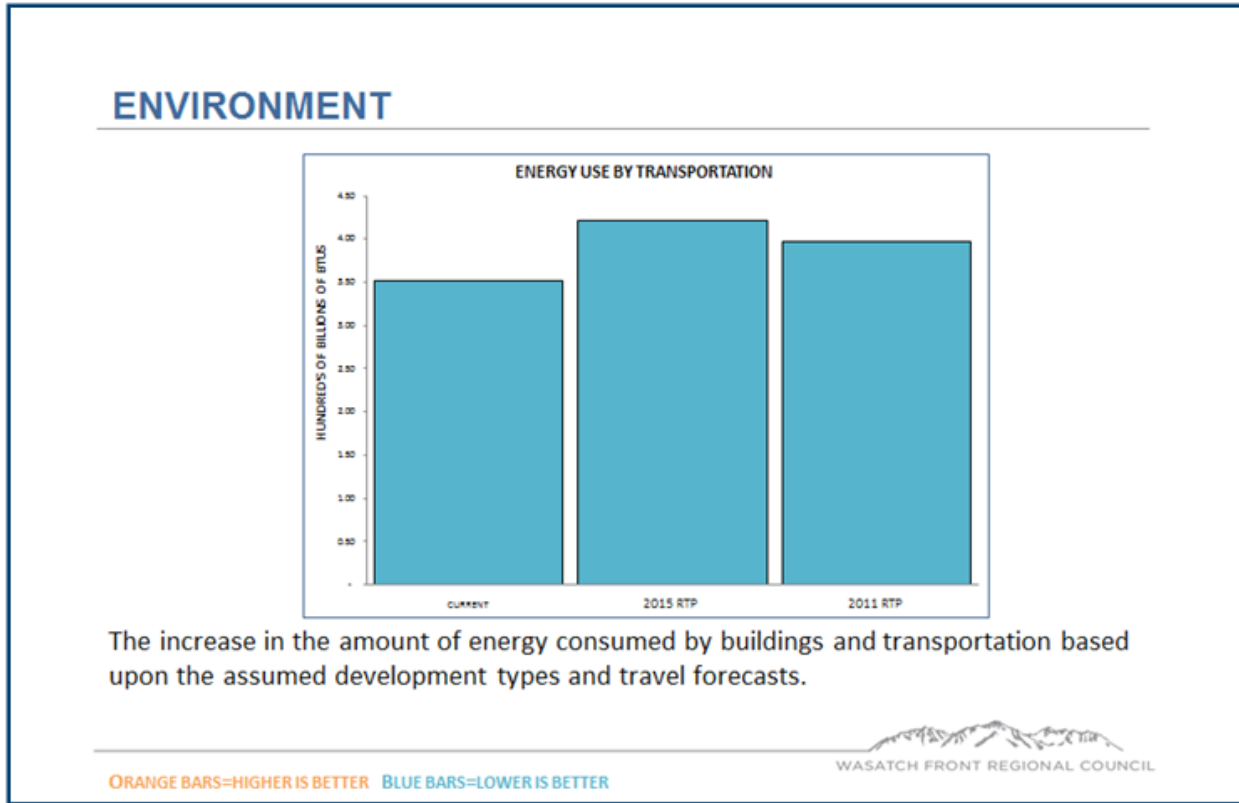
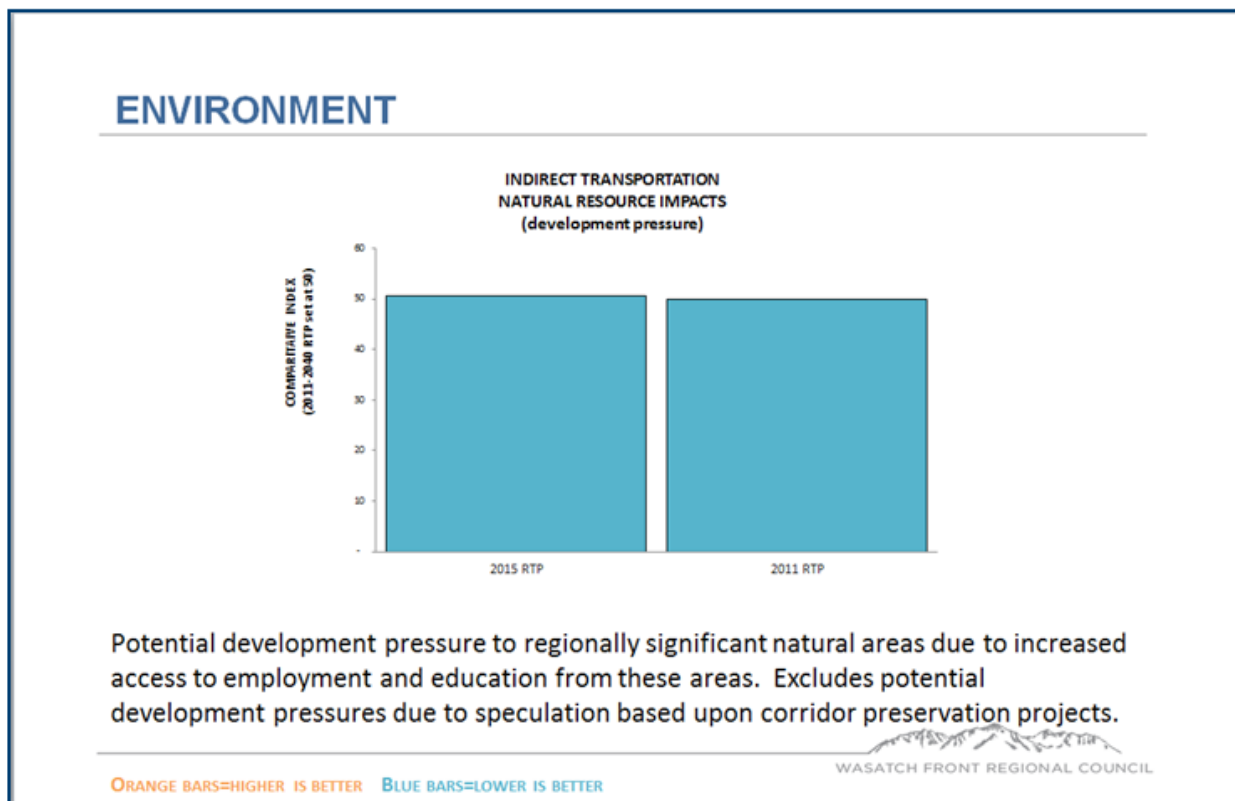
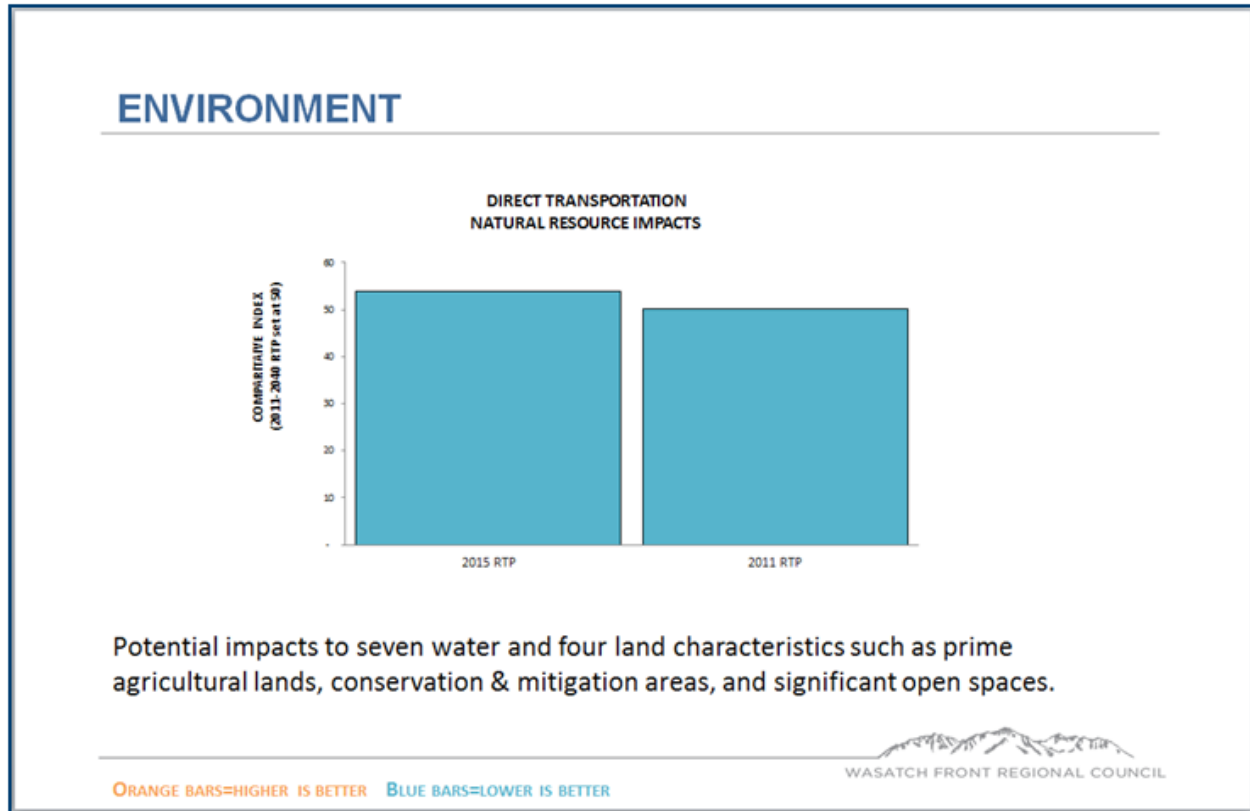
FIGURE 8 - 9 TRANSPORTATION ENERGY USE

FIGURE 8 - 10 INDIRECT NATURAL RESOURCE IMPACTS


FIGURE 8 - 11

DIRECT NATURAL RESOURCE IMPACTS



SOCIAL IMPACTS AND BENEFITS

Transit, highway, and active transportation projects and facilities identified in the 2015 – 2040 RTP are socially beneficial. Such improvements help people travel to destinations they want to reach while providing choices in how trips are made. However, the construction of projects does have the potential, without proper implementation, of having adverse social effects on existing urban areas and on future development. Negative social impacts include increased noise, neighborhood disruption, and residential and commercial dislocations. This section discusses the 2015 – 2040 RTP's potential impacts on land use, relocations and neighborhood disruption, housing goals and strategies, school safety, cultural resources, and disadvantaged groups.

Land Use

The connection between land use and transportation has been studied by planners and engineers for many years. Traditionally, extending a region's transportation network opens up additional land for eventual development. In turn, newly developed land with its increase in travel demand may require improvement of the existing transportation network. It is evident in the Wasatch Front Region that transportation improvements are not keeping

up with the growth in travel demand. The rapid growth of the suburbs during the past several decades has created very significant changes in urban travel patterns. One of those changes is an increase in suburb-to-suburb travel. The trend to further decentralization and the attendant dispersal of population and employment, gives rise to the emergence of significant suburban commercial / industrial traffic generating activity nodes. This trend is expected to continue for the foreseeable future. New development has occurred without the supporting transportation improvements needed to serve it. This situation will place even further demands on the transportation system that, without huge future investments, will not keep up with demand. This situation may result in continued congestion in the growing parts of the Wasatch Front Region.

In order to better connect people with jobs and other destinations, it will become increasingly important to coordinate local government land use plans and zoning ordinances with the Regional transportation planning process. In order to mitigate current problems and meet future travel demand, local planners must carefully consider the transportation implications of their land use recommendations. Concurrently, regional transportation planners must strive to match recommended transportation investments to changing land use patterns. Implementation by local governments

of the [Wasatch Choice for 2040 Vision](#) for land use and transportation will help connect people with destinations through the establishment of additional activity nodes, corridors of mixed use, and transit oriented development. This approach will bring jobs, housing and transportation facilities closer together. Adopting policies needed to implement the Vision will reduce the need for vehicular travel and the resulting congestion.

The [Wasatch Front Regional Council](#) works with local governmental jurisdictions to coordinate transportation planning with local land use planning. The process used in the development of the 2015 – 2040 RTP gave significant consideration to the location of future population, employment, and other variables that are factors used in estimating transportation demand. Both population and employment projections were correlated with the land use provisions of each local government’s general plan, the Wasatch Choice for 2040 Vision, and the Growth Principles, which were first developed in the Wasatch Choices 2040 visioning effort. The Wasatch Choice for 2040 land use Vision and land use and transportation planning information from the Region’s local jurisdictions’ general plans, were inputs to the transportation planning process. During the planning process, the WFRC made considerable efforts to create a transportation plan that would best support the Wasatch Choice for 2040 Vision and the official land use and transportation policies of its member entities.

Relocations, Neighborhood Disruption, and School Safety Relocation and neighborhood disruption impacts vary with the type of transportation project proposed. Generally, relocation impacts are determined by the distance structures are “set back” from the existing street rights-of-way and the amount of right-of-way required for the project. Neighborhood disruption impacts occur when homes, businesses, or community institutions are physically removed from the neighborhood or when the roadway becomes a barrier to neighborhood interaction.

Relocation of homes and businesses may result of from the implementation of some projects in the 2015 – 2040 RTP. Most relocations will be relatively minor. The projects on the 2015 – 2040 RTP will require the acquisition of an additional 13,000 acres of rights-of-way from an estimated 25,000 parcels. Freeways, expressways, and six and eight-lane principal arterials have the greatest potential to disrupt neighborhoods and create barriers.

Mitigation- During project design, relocations may be avoided by shifting the highway alignment to limit impacts. Relocation impacts can also be mitigated by following federal relocation guidelines, which provide for

relocation assistance and other benefits. Neighborhood disruptions may be minimized by providing pedestrian and bicycle crossing facilities, maintaining local street inter-connectivity, depressing the roadway to limit visual intrusion and/or providing impacted neighborhoods with other resources to mitigate losses.

School Safety

School safety impacts resulting from roadway projects vary according to the nature of the roadway change, the type of school involved, and the traffic exposure student pedestrians may be subjected to. For this report, projects with potential for unusual or major impacts on safety are those involving the widening of an existing road from 4 or less lanes to 6 or more lanes within the designated “walk-to-school” area of an elementary or junior high school. Local school districts were contacted to identify these walk-to-school areas. The state does not provide for the busing of students living within 1.5 miles of an elementary school or two miles of a secondary school. Projects on the 2015 – 2040 RTP project list are estimated to be in immediate proximity to 476 schools. The average concentration of children in census block groups impacted by the projects is 30 percent of the total population within these block groups. **Map 8-1** shows the location of elementary schools, junior high schools, high schools, colleges and universities.

Mitigation – Mitigation strategies for schools may include adjustment of project rights-of-way requirements in proximity to schools, providing adequate temporary or permanent pedestrian facilities adjacent to new or widened highways. Coordination between those responsible for specific construction activities and officials from the immediately affected schools is understood. Additional safety improvement would include adequate crossings with signals and air quality monitoring stations in proximity to schools that are adjacent or in close proximity to major highways.

Housing Goals and Strategies

The Wasatch Front Region has experienced tremendous growth in the past several years. As a result of this growth, the housing market in the Region has been very dynamic. While housing construction during this time period has generally kept pace with population growth, concerns have been expressed about the type, location, cost and other issues associated with new housing. The overall cost of housing is an issue that has been receiving much attention in recent years. Increases in housing costs within the urbanized area have been some of the steepest in the Nation. Volatility in housing prices due to

general economic conditions is another factor that must be considered as well. In response to concerns about escalating housing costs, the State Legislature in its 1996 General Session passed a law requiring local jurisdictions to update the housing elements of their general plans. Specifically, local government plans must include an analysis of the need for moderately priced housing within their jurisdiction and a description of realistic programs and strategies aimed at promoting this type of housing. Many local governmental jurisdictions in the Wasatch Front area have completed the required housing element update. However, others are still in the process of addressing this requirement.

At the regional level, housing needs have been evaluated through a number of studies needed to generate comprehensive housing affordability strategies. More recently, broad based consolidated plans, largely concerned with housing and supporting infrastructure, have been required by the [Department of Housing and Urban Development](#) (HUD) in order for states and local jurisdictions to make use of various funding programs. These processes have identified general housing needs and have led to the creation of plans and strategies aimed at meeting these needs.

In addition to impacts on housing location, transportation projects can have direct impacts when relocations are required. Improvements proposed in the 2015 – 2040 RTP have been reviewed to determine if there are potential conflicts with local and regional housing goals and strategies. Generally, there appear to be few projects that would present such conflicts. Most new highway construction or widening projects included in the 2015 – 2040 RTP may require a very limited number of dwelling units to be removed. However, two major highway projects will likely require more extensive removal of existing residences. These are the Mountain View Corridor (MVC) in western Salt Lake County, and the West Davis Highway (WDH) in Davis and Weber Counties. Any projects requiring the removal of homes and relocation of families would be subject to, and in accordance with, all applicable relocation and replacement policies.

Mitigation – As might be expected, in the current climate of relatively high housing costs, meeting the basic housing needs of those with very low incomes, or in need of specialized housing opportunities, is a significant concern. Expansion and coordination of area social service programs will likely be required to help meet affordable and specialized housing needs. The Wasatch Choice for 2040 envisions future centers for development in the Region providing for mixed use and a variety of housing options to address the need

for moderate and low-income housing. These centers will be designed as walkable communities served by transit to provide for improved access between future housing and employment opportunities. WFRC is also part of a consortium that has received a Sustainable Communities grant from the US Department of Housing and Urban Development (HUD). This grant will be used to assist in implementing the Wasatch Choice for 2040, part of which is to develop a regional housing plan. Transportation improvement projects proposed in the 2015 – 2040 RTP would have little direct impact on housing goals or strategies aimed at meeting these needs. However, additional transit services can provide long term benefits such as improved access to social service providers, employment opportunities, etc. Lastly, when dwelling units need to be relocated, the state and federal governments can provide assistance through established relocation assistance programs.

Cultural Resources

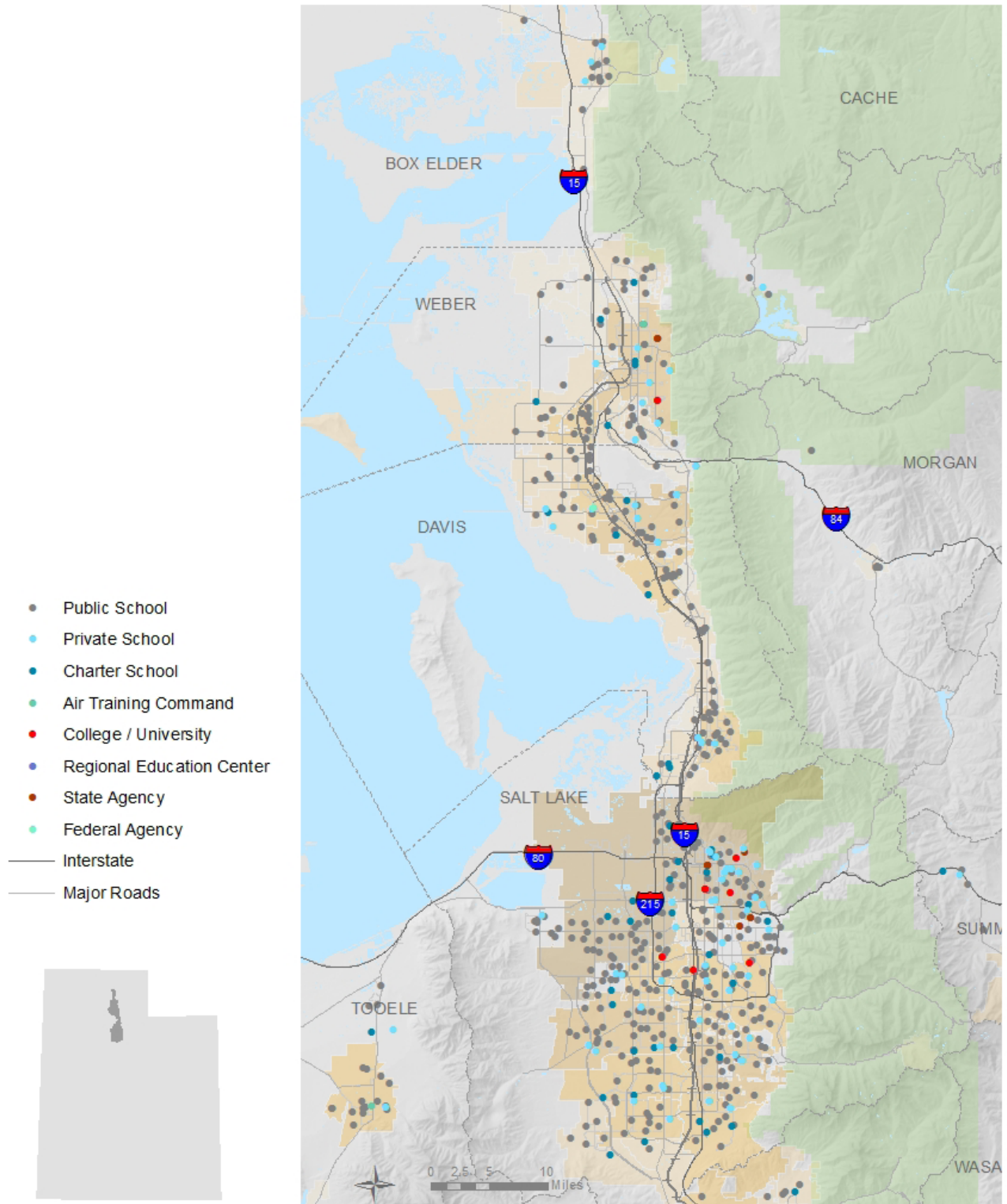
Highway and transit projects can have positive impacts by improving access to cultural resources. However, potential negative impacts include noise, the need to relocate housing and other structures, etc. The evaluation of the 2015 – 2040 RTP also considered potential impacts on historic districts.

The Wasatch Front Region has a number of national and locally registered historic districts, including University, Exchange Place, South Temple, Avenues, Central City, and Capitol Hill, located in Salt Lake City. Four additional Salt Lake City historic districts: Highland Park; Gilmer Park; Warehouse; and Northwest, are nationally registered. Ogden City has two national and locally registered historic districts: 25th Street and Eccles Avenue. The Jefferson Historic District is nationally registered, and Ogden City planners are considering the creation of the East Central Bench District. Farmington City has a single state registered historic district, Clark Lane. Copperton City, an unincorporated community in Salt Lake County, is listed on the national registry. West Bountiful, Riverton, Midvale, Murray, and Sandy City have older residential and commercial areas that might qualify as historic districts. The evaluations of potential highway or transit projects in the 2015 – 2040 RTP with regard to impacts on cultural resources are site specific. Evaluations show that there are approximately 100 historic sites comprising about 50 acres that may be impacted by proposed projects.

Mitigation – Specific impacts on all cultural resources will be identified and mitigation measures determined during the environmental analysis phase of the project

MAP 8 - 1

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN URBAN AREA SCHOOLS



development process. If unknown cultural resources are encountered during project development or construction, appropriate investigation and mitigation will be undertaken. Efforts will be made, subject to federal and state policy, to provide mitigation measures that are easily accessible to the general public. Such mitigation measures might, for example, include the placement of historical information markers, in addition to providing standard documentation.

TITLE VI AND ENVIRONMENTAL JUSTICE

Environmental Justice embraces the principle that all people and communities are entitled to equal protection under national environmental, health, employment, housing, transportation, and civil rights laws. On February 11, 1994, President Clinton signed Executive Order 12998, entitled [Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations](#). This order augments Title VI of the Civil Rights Act of 1964, which states in part that, “No person in the United States shall, on the ground of race, color,

or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.” Recipients of federal aid are required to certify compliance with Title VI of the Civil Rights Act of 1964. The [United States Department of Transportation](#) must ensure nondiscrimination under Title VI and other applicable laws, regulations, and policies. Federal transportation authorities and the courts have held that Title VI applies to the transportation planning process and all citizens should receive the benefits of, and not be adversely impacted by, regional transportation plans.

Transportation Needs Of Target Populations

The WFRC conducted a series of outreach meetings with the leadership of local organizations and non-profit groups representing low-income, minority, Native American, disabled, and elderly populations within the Urban Area. The purpose of the 2015 – 2040 RTP was presented and specific transportation related issues relative to these environmental justice groups were discussed. A summary of the concerns raised by each

TABLE 8 - 1 **SUMMARY OF COMMENTS RECEIVED ENVIRONMENTAL JUSTICE GROUPS**

GROUP	COMMENT
Coalition de La Raza	“Our people ride buses.” The bus system was reduced to help fund TRAX and FrontRunner. It needs to be brought back to full operation.
Coalition de La Raza	The hours of operation need to be extended. Also, weekend service needs to be expanded.
Indian Walk-In Center	The transit oriented developments planned along the TRAX lines need to have affordable housing as well.
Indian Walk-In Center	The TRAX stop near their office at 1300 South has helped immensely for client access.
NAACP	UTA does not concentrate on where the minorities live and they need to be part of their decision making. They seem to be more concerned about their suburban, middle-class clientele on TRAX.
Disability Rights Action Coalition	UTA should accept an SSI check stub or a Medicaid card as evidence of low income for the purpose of purchasing discounted transit passes.
Disability Rights Action Coalition	The increasing cost of public transit is pricing the poor out of the market. This is particularly true of para-transit where a ride is now \$8.00 for a round trip. This is a lot of money to someone living on SSI. This has the effect of isolating people in their homes.
Salt Lake Area Authority on Aging	Every city should have a complete streets ordinance. We need more bicycle lanes and walking paths.

TABLE 8 - 2 CENSUS TRACTS IMPACTED BY 2014-2040 RTP PROJECTS

TARGET POPULATIONS	TRACTS
Minority	82
Low Income	87

group has been provided in [Table 8-1](#). More detailed documentation of these meetings can be found in [Appendix O](#), entitled “Transportation Needs Of Target Populations.”

As part of its efforts to ensure region-wide environmental justice in the development and implementation of the 2015 – 2040 RTP, the WFRC documented the distribution of specific, target population groups. Target populations along the Wasatch Front are defined as members of minority groups (defined as non-white, Hispanic) and low-income persons defined in the 2010 Census.

Geographic Information System (GIS) technology was applied to compare and map the data as target populations provided by the Census Bureau. Census data at the block group and census tract levels were used for a spatial comparison and for the mapping of target populations. Those areas that contain a higher percentage of target populations than the regional averages are identified in [Map 8-2](#). The definition of each target population category is found below.

Minority Population – For the purposes of this analysis, a member of a minority population is defined as a person that identified as non-white and/or Hispanic of any race on the 2010 U.S. Census form.

Low-Income Population– Low-income population is defined as a Household Income less than 85 percent of the County median income as reported in the 2009-2013 5-year American Community Survey.

Impacts of 2015 – 2040 RTP on Target Populations

This comparison, summarized in [Table 8-2](#), evaluated the potential impacts of recommended widening, rights-of-way acquisition, and new construction projects on target populations. The table shows the number of census tracts in each target population category. Note that many of these tracts may fall into more than one category. The potential impacts of planned highway and transit projects on affected targeted populations throughout the Wasatch Front Urban Area is significantly lower than that on non-target groups.

Benefits Of RTP For Target Populations

The 2015 – 2040 RTP provides a number of transit and

road related benefits which will help members of the target populations. The Plan recommends continued growth in rail service and other enhancements funded, in part, by the November 2006 transit tax referendum approved in Salt Lake County. By 2040, the increase in transit service will be approximately 125 percent compared to the 1997 bus system.

High frequency bus corridors are planned for the Region’s most heavily used arterial streets and collector roads, many of which run directly through areas with concentrations of environmental justice (EJ) populations. These facilities include 3500 South, 1300 East, North Temple, and Foothill Drive in Salt Lake City, as well as 24th Street, Harrison Blvd, and Washington Blvd in Ogden. Additional transit corridors are planned, including the Herriman and Draper TRAX extensions. Corridor preservation for regional commuter rail service is programmed for an extension to Brigham City. In addition, existing rail projects serve concentrations of EJ populations in Midvale (Mid-Jordan TRAX Line), Rose Park (Airport TRAX Line), and West Valley City (West Valley TRAX Line and MAX Bus).

The Utah Transit Authority continues to upgrade its bus fleet and transit stops to meet the requirements of the [Americans with Disabilities Act](#) (ADA). All new buses are equipped with wheelchair lift ramps and secured tie-down positions for disabled patrons. Approved ADA curb cuts, better asphalt maintenance, improved site drainage at bus stops and shelters, and the increased time for pedestrians to cross streets will benefit both patrons with disabilities and / or the elderly, as well as the general public.

In view of the foregoing discussion relative to the careful mapping of the locations of EJ populations, the extensive outreach to EJ organizations and groups to determine transportation needs, and the targeting of major projects (mainly transit) to meet those needs, the WFRC is of the opinion that the EJ community is not disproportionately disadvantaged by a lack of needed transportation projects within the RTP. In addition, the EJ community is not burdened with a disproportionate share of impacts from transportation projects within the 2015 – 2040 RTP because they mostly live in built up areas that are not slated for major road projects. See Table 8-2 above.

[illegible]

1964 Civil Rights Act Section VI Compliance

The Wasatch Front Regional Council is obligated under Section VI of the [1964 Civil Rights Act](#) to reach out to members of minority groups, the physically challenged, and other transportation disadvantaged individuals and engage them and their representatives in the Regional Council's transportation planning process. In preparation for this effort, the Regional Council adopted a [Title VI](#) compliance plan on March 27, 2014 which includes a Limited English Proficiency Plan and incorporates by reference, the adopted Public Involvement Plan. The Title VI Plan ensures that consistent outreach efforts are made to minority and limited English proficient populations as part of the RTP update process. The Plan includes the placement of posters in the WFRC office and on its website instructing concerned individuals on how to submit complaints for discrimination on the state and local level. WFRC has established this Title VI Complaint Procedure in order to receive and work to resolve any grievance appropriately. By adoption of the Title VI Plan, the Regional Council has agreed that, "the selection of representation on the WFRC is done without regard to race, color, and national origin."

The Title VI Plan includes other elements such as ensuring that WFRC venues and open houses have convenient transit and Americans with Disabilities Act compliant access. The Plan also requires that the WFRC locate minority populations and compare the locations of those concentrations with the major transportation projects within the 2015 – 2040 RTP to make certain that there are no undue or disparate impacts to those populations.

A major element of the Title VI Plan is the adoption of a Limited English Proficiency (LEP) Plan which outlines steps the WFRC will take to include those individuals with a limited ability to speak English. The LEP states in part:

"In March 2014, the WFRC adopted the Limited English Proficiency (LEP) Plan, which is included as [Appendix A](#) in the Public Involvement Policy (Attachment 5). The LEP Plan uses the Four Factor Analysis to identify LEP persons that need language assistance, outlines how language assistance is available, and describes how staff considers the needs of LEP persons. In accordance with the Safe Harbor Provision, WFRC has analyzed which language groups exceed the 1,000 persons or five percent threshold. These language groups are listed in Attachment 6. Since there are 5 languages that meet the Safe Harbor threshold, it is not feasible to translate vital documents into all of these languages. Therefore, WFRC focuses translation efforts on Spanish, which is

the largest language group in the region other than English, comprising over 70 percent of the Region's LEP population. WFRC public meeting notices and agendas will include a disclaimer in English and Spanish indicating that translation services are available if a request is made at least 72 hours before the meeting."

The four factor analysis mentioned in the LEP extract quoted above has been completed. In addition, all meeting notices and the website carry notices that Spanish translation is available.

Environmental Justice Outreach

The Regional Council is committed to full implementation of the above plans in order to ensure that all residents receive an equal opportunity to participate in the transportation planning process. As part of that effort, the Regional Council has an extensive outreach program to environmental justice populations. For this RTP update cycle, Regional Council staff members have met with the governing boards of the following organizations:

- [Salt Lake County Community Action Program](#)—January 20, 2012
- [Coalition de La Raza](#)—February 20, 2012
- [Salt Lake Community Action Program Housing Staff](#)—February 23, 2012
- [Disability Rights Action Coalition](#)—March 6, 2012
- Weber County Coordinating Committee—May 16, 2012
- Regional Coordinating Council (for the transportation disadvantaged)—April 4, 2012
- [Disability Law Center](#) Staff—April 11, 2012
- [Jordan Meadows Community Council](#) (Rose Park Area)—April 11, 2012
- Salt Lake City Association of Community Councils—June 7, 2012
- [Ogden-Weber Community Action Program](#)—July 2, 2012
- Senior Citizen Concerns/Willowood Senior Housing—July 12, 2012
- [Davis County Coalition Against Domestic Violence](#)—July 7, 2012
- Weber Area Association of Human Service Organizations—August
- Survey of Mobility Needs for Transportation Disadvantaged 900 respondents—August 23, 2012
- [League of Women Voters](#)—November 12, 2012
- [NAACP](#)—November 20, 2012
- [Utah Indian Housing Council](#)—January 28, 2013
- Salt Lake Area Authority on Aging—February 7, 2013
- Indian Walk-in Center—March 25, 2013
- [Utahns for Better Transportation](#)—August 28, 2013

During the meetings documented above, the WFRC staff presented the current 2011 – 2040 RTP and then solicited the respective agency board members thoughts regarding present and future transportation needs for their client populations. These comments were carefully recorded and shared with Regional Council planning staff and board members prior to the selection and prioritization of the projects within the RTP. They were also made part of the summary of comments found in [Appendix C](#), entitled “Public Involvement And Comment Summary.”

Safety And Homeland Security

The WFRC does not perceive any adverse social impacts from any of the safety projects, or projects which include specific safety features. Rather, specific safety projects, and projects including safety features, will provide a direct social benefit to target populations. These benefits include bicycle and pedestrian safety, the improvement of intersection safety, the promotion of safer truck travel and the enhancement of railroad crossing safety.

Similar to safety, security was also considered in the development of the 2015 – 2040 RTP. The MPO is continuing its coordination effort with state, regional and local transportation and community planners as well as its security oriented partners. In an effort to enhance the security of transportation system and infrastructure, the WFRC staff has contributed to the [Governor’s 10 Year Strategic Energy Plan](#) through participation on the Transportation Sub-Committee. Staff also continues to participate on the Private Sector Homeland Security Coordinating Council with representatives of the two major regional security organizations the [Utah State Division of Emergency Services and Homeland Security](#) and the Utah Local Government Association of Emergency Services/Security, and the majority of the emergency support function (ESF) representatives from ESP No. 1 Transportation to ESP No. 16 Military Support. The State of Utah continues to refine the Utah Emergency Operations Plan (EOP), which includes emergency operations procedures for all departments in state government including transportation (ESF #1) through the State DOT. The communications portion of the EOP is essential and includes links to all state, local and federal agencies as well as private industry. The WFRC has also reviewed the [Utah Energy Shortage Contingency Plan](#) and UTA’s current Public Transit Emergency Management Operations and Recovery Plan to ensure appropriate coordination with the MPO’s on-going planning processes.

The 2015 – 2040 RTP’s recommendations address security of the transportation system in a number of

ways, including improving multi-modal system capacity (bicycle, pedestrian, roadway and transit), increasing system redundancy, increasing or improving park-and-ride and transit hubs and expanding the Region’s ITS program. With increases in the number of lanes at choke points on I-15, I-80 and other facilities in Weber, Davis and Salt Lake Counties, the likelihood of traffic congestion decreases as does the security vulnerabilities at these locations. Similarly, the capacity of the over-all transportation system has been increased. Needed redundancy in the system includes both high capacity transit and new and expanded highway facilities. Transit projects include commuter rail, light rail, streetcar, bus rapid transit lines, park-and-ride lots, transit station expansion or enhancement. Highway improvement include projects such as the West Davis Corridor (SR-67 Extension) in Weber and Davis Counties, the expansions of I-15 and US-89 in Davis County, the expansions of SR-201, I-80 and I-15, and the Mountain View Corridor in Salt Lake County. Both highway and transit projects combine to decrease congestion by providing commuters with alternative modes and routes, and will increase the security of the transportation system by adding redundancy and decreasing the likelihood of a catastrophic system failure.

Recommended improvements for the Intelligent Transportation System (ITS) program will also enhance the security of the transportation system. Significant portions of the “Commuter Link” system, a computer-controlled system designed to monitor and manage traffic flow on freeways and surface streets, are in operation with information available to the public through the internet. ITS will continue to be improved with the addition of more closed-circuit television cameras, electronic roadway signs, coordinated traffic signals, ramp meters, traffic speed and volume sensors, pavement sensors, weather sensors, and the continued use of the 511 Travel Information Line. Integrally linked to the ITS system, the [UDOT Traffic Operations Center](#) (TOC) monitors and manages traffic flow on surface streets and freeways. UDOT’s TOC is connected to smaller traffic control centers in Salt Lake City and Salt Lake County, as well as UTA’s three radio control centers. All of these agencies work closely together to improve travel, safety and security along the Wasatch Front.

ECONOMIC IMPACTS AND BENEFITS

Consistent with the [Wasatch Choice for 2040 Vision](#), the Wasatch Front Regional Council believes in a transportation network that enhances the regional

economy. To this end, the WFRC seeks to improve mobility and make transportation investment and land use decisions that retain and recruit businesses, labor, and keep the region an affordable place to live and do business.

The WFRC sought feedback from the Region's Wasatch Front Economic Development District in order to gain a better understanding of transportation related economic needs, impacts, and benefits. One of the WFEDD objectives is to encourage development near transportation hubs and along public transit corridors. Another objective is to promote multi-modal transportation options, especially those that encourage and promote existing corridors. The State of Utah has worked hard to improve its transportation infrastructure in order to allow Utah to better support large consumer markets and population centers.

Job Accessibility

Improving the ability of residents to travel to job sites in a reasonable amount of time can be thought of as the basic purpose of transportation- to help people go to desired destinations and return. It is also one important measure of how well the transportation system helps the economy thrive. Improving job accessibility for homes is similar to improving labor and patron accessibility to businesses – a better score means a broader pool of potential employees, more patrons that can access a business easily and also relates to freight movement considerations. In the 2015 – 2040 RTP, planners analyzed job accessibility by homes. This analysis was done for both roads and for transit. The findings are included **Maps 8-3 and 8-4**. The 2015 – 2040 RTP improves job accessibility for both roads and transit when compared to today.

Redevelopment

The land use assumptions for the 2015 – 2040 RTP include a growth of 37 percent of housing units through infill and redevelopment. This varies from a recent trend in which 25 percent of the Region's housing growth has occurred through infill and redevelopment. The transportation plan supports this pattern of infill and redevelopment and it is consistent with the feedback received through the planning process. Growth in infill and redevelopment helps cities and towns to remain vital while also protecting against deterioration as buildings age and become obsolete. Infill or redevelopment takes growth pressure off vacant areas and puts people and jobs close to existing infrastructure. Infill/redevelopment reduces the need to build new infrastructure, reduces

average driving distances, and tends to enable more people to use transit. Fundamentally, it also improves job accessibility helping residents more easily and effectively participate in the economy

Weber County

The WFRC staff held meetings with representatives of the [Governor's Office of Economic Development](#) (GOED) to gather input for the 2015 – 2040 RTP's Project Lists and to receive insights on the implications for regional economic development. In addition, UDOT, in conjunction with the development of its Statewide Plan, requested input from GOED on the same subject. In response to UDOT's request, GOED prepared a memorandum that identified the most important projects in the state in terms of economic development, using the following criteria: (1) alignment with industry clusters; (2) alignment with anticipated location of future economic activity; and (3) alignment with planning efforts.

Using GOED's memorandum to UDOT and the results of the WFRC staff's own meeting with GOED personnel, existing and potential sites in the Region that are expected to experience significant future economic activities, are identified below. The transportation facilities that serve, or are needed to serve, these sites are also identified.

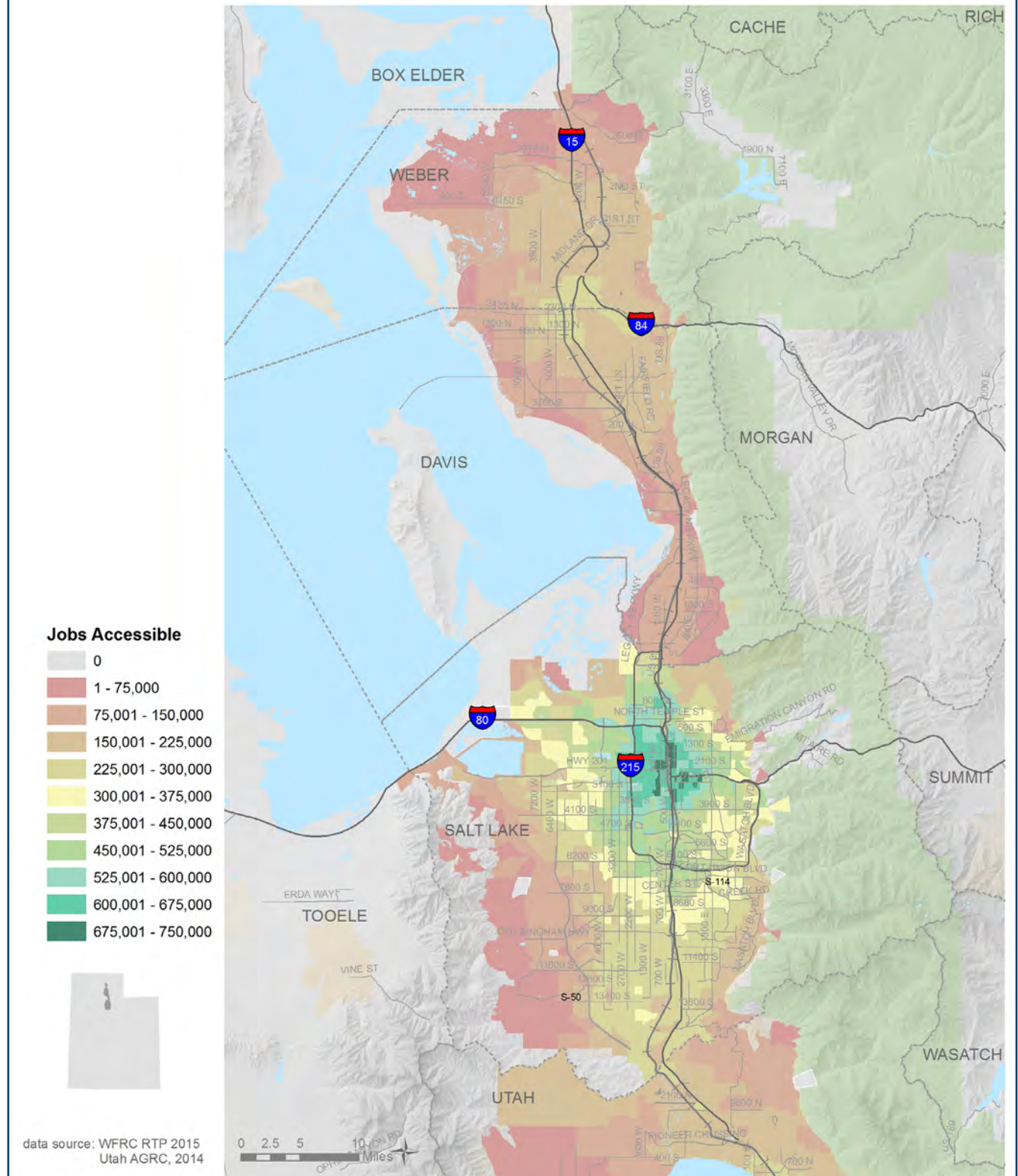
Pleasant View Area Industrial Park - The area is located near 2700 North between US-89 and SR-126. There are about 200 acres that could be developed for light industrial and other uses. I-15 is fairly close to the west. The number of future jobs this development could accommodate is estimated in the thousands. Direct access is provided by 2700 North, US-89, and / or SR-126. The northern terminus of [UTA's FrontRunner](#) commuter rail is located in the area on 2700 North, which is in service during peak hours.

Transportation Access - Overall road capacity in the area will be an important factor in its development. The I-15 / 2700 North Interchange, the adjacent roads, and commuter rail will play an important role in making this site successful.

Business Depot, Ogden (BDO) - This facility was previously known as Defense Depot, Ogden. It was a military installation for many years. In 1997, Ogden City acquired the Depot and since then the City has expended considerable effort to convert the area into a business park. The City has granted the Boyer Company a 70-year lease for the facility. The company is making good progress toward filling the former depot with a wide

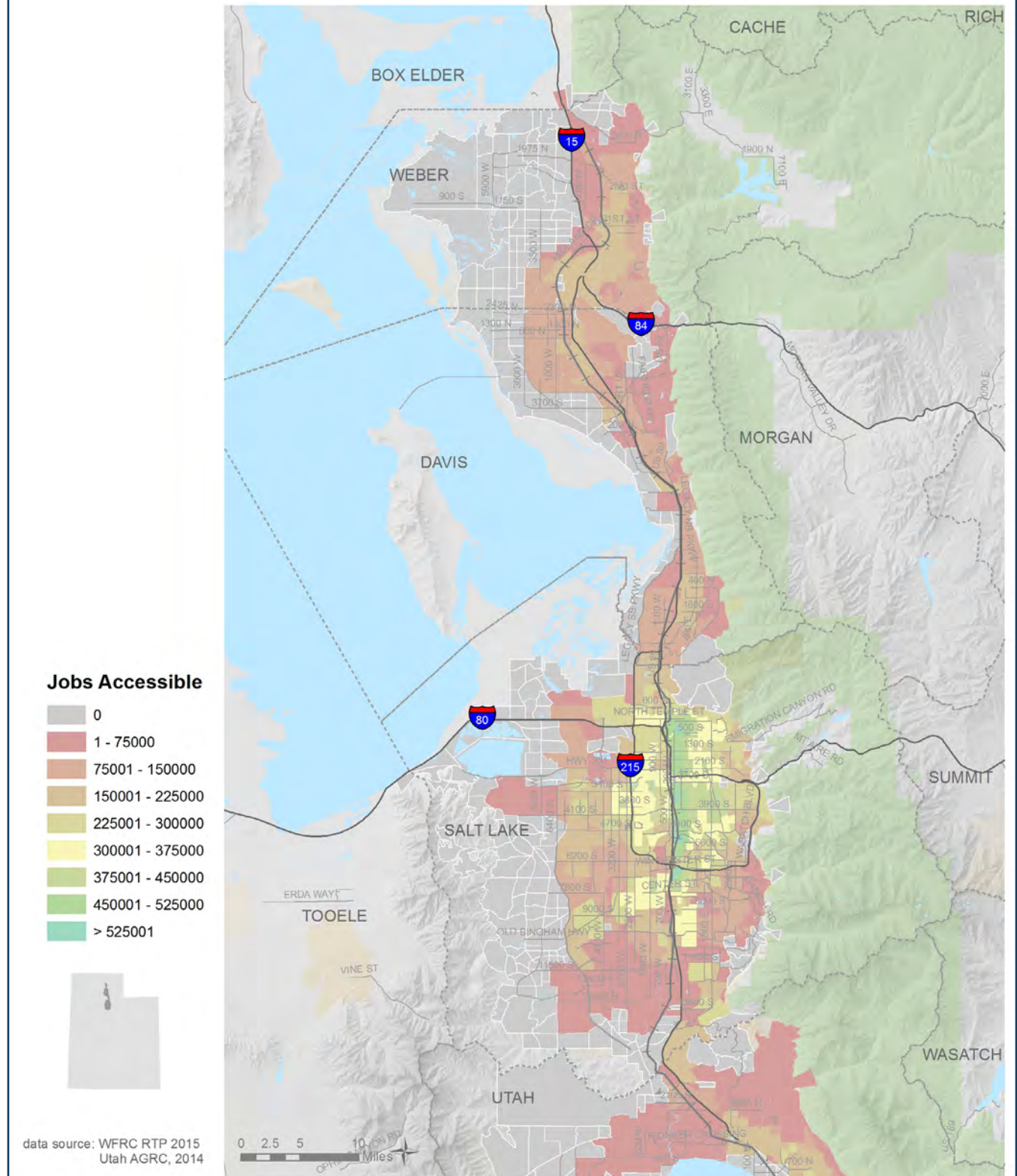
MAP 8 - 3

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN JOB ACCESSIBILITY - 20 MINUTE AUTO



MAP 8 - 4

2015 - 2040 WASATCH FRONT REGIONAL TRANSPORTATION PLAN JOB ACCESSIBILITY - 40 MINUTE TRANSIT



variety of businesses. The facility consists of 1,200 acres of land and has about 6 to 7 million square feet of floor space. About 75 percent of this space is under lease. There are about 500 acres available for new construction. During the past five years, ten new buildings have been constructed with a combined floor space of 1.5 million square feet. Some of the companies currently located in the BDO are Rossignol, Scott, USA, LK Stainless, Lofthouse Foods, Icon Health and Fitness, and Kimberly-Clark. Currently, there are about 3,000 employees working for businesses in the Depot. By 2025, about 10,000 employees are expected to be working at the BDO.

Transportation Access - The BDO facility's major access is via I-15, located about one mile to the west. The road that provides the most direct access to the BDO is 400 North. This road connects to I-15 via the 400 North-Pioneer Road / I-15 interchange. Other roads that serve the facility are 12th Street, 2nd Street (from the east), and 1200 West. Currently, because of surface deterioration, there are restrictions on the use of 1200 West by trucks heavier than 10,000 lbs. Marriott-Slaterville is planning a street widening from 2 to 4 lanes, with a turning median, and a reconstruction project for 1200 West, from 1000 North to 12th Street. The improvements to 1200 West and 400 North are important to the economic well-being of the BDO. Restrictions on 1200 West are a detriment to the BDO's leasing prospects. Current users of the facility are forced to detour on less convenient roads for access to and from the facility. Correction of these problems as soon as possible will help the BDO be more competitive and successful.

Davis County

Hill Air Force Base West Side Development (Falcon Hill) – [Hill Air Force Base](#) (HAFB) has begun construction of a 570-acre business and technology park next to I-15. The land is proposed for lease to private interests, and is located on the west side of the Base near the West Gate. This development is a very high priority for the state's economic development programs. The site offers an opportunity for a large-scale project which private land developers under normal conditions could not afford to develop. The general concept involves relocating the security fence away from I-15 to allow businesses to locate adjacent to HAFB. The five million square feet of space being proposed for development over a 20-year period translates into 10,000 to 20,000 jobs. However, most of these jobs will relocate to Falcon Hill from existing locations in the Region. It is expected that this project will form one of two core locations for the defense / aerospace / advanced composites industry

cluster (the other being at the Ogden-Hinckley Airport).

Transportation Access – In order to facilitate development of this project at I-15 and 1800 North, an interchange needs to be constructed, since it will provide significantly improved access to the site. It will be important for the interchange to function properly with ample capacity. A link to the [FrontRunner](#) commuter rail station in Clearfield would enhance the site.

Freeport Center / Freeport Center West (Clearfield) - [The Freeport Center](#) had its beginnings during World War II when it was established as a United States Navy defense installation. In the 1970s, the installation was closed and the property sold to private interests. It has redeveloped into a significant warehousing and manufacturing facility.

The Freeport Center is comprised of 680 acres of land. The Center consists of 78 buildings (ranging in size between 4,000 to 400,000 square feet) and employees approximately 7,000 people. About 7 million square feet of building space is available for the 70 companies located at the Center. Some of these companies include ATK-Thiokol, Lifetime Products, Futura Steel Manufacturing, Fram Oil, and U.S. Foods. The Center is essentially fully leased, with a vacancy rate of less than one percent. The facility is serviced by rail, and there is some room to expand on 40 vacant acres. There is also potential for redevelopment.

The Freeport Center West facility was established in 1991 and is located adjacent to the Freeport Center on the southwest side. It is comprised of about 85 acres with 10 buildings totaling about one million square feet. Two recently renovated buildings are available for lease at the facility each having about 120,000 square feet of available space.

Transportation Access - This facility is primarily served by I-15, which is located about one mile to the east and SR-126, which is located about one-half mile to the east. Both of these routes to the east of the Freeport Center are oriented in a north / south direction. Access from these two roads is provided via two I-15 interchanges. One is located at 1700 South (Antelope Drive) and the other at 700 South (SR 193) in Clearfield. Both of these east / west routes lead directly to the Freeport Center.

There are several transportation improvements currently underway or planned in the area that could serve the Freeport center. It will be important to provide some

linkage to the [FrontRunner](#) commuter rail station which is located just to the east of the Freeport Center. Also, the 2015 – 2040 RTP has identified east / west roads in need of improvement. These improvements enhance access in the area where the Freeport Center is located. These are the 200 / 700 South connection, and improvements to 200 South and 1700 South (Antelope Drive). Currently, internal traffic and parking presents problems for the facility. Employees parking their vehicles at the buildings where they work may impede trucks serving the facility. The Freeport Center's property management organization has stated that they would like to construct a central parking lot for employees from which a shuttle, using vans or buses, would service the various businesses.

Salt Lake County

Northwest Quadrant - The Northwest Quadrant as identified by Salt Lake City covers a large area (from SR-201 to about 3000 North, and from Bangerter Highway on the east to about 7400 West on the west). A considerable amount of light industrial and other development already exists on the west side of Bangerter Highway, with a potential for substantial expansion. North of I-80 and west of the [Salt Lake International Airport](#) is the International Center, which could also expand into a large amount of acreage to the west and north. In addition, there are trucking and railroad (Union Pacific Intermodal Terminal) complexes emerging in the 5600 West Corridor both west and south of the International Center. One potential site for the relocation of the Utah State Prison is north of I-80 at 7200 West. As noted, there is considerable potential for growth in the Northwest Quadrant. The biggest drawback for the area has been the lack of water, sewer, and other infrastructure. There is also the presence of hazardous wastes, operating solid waste facilities, and environmental (wetland) issues.

Transportation Access – I-80, SR 201, and 5600 West, as well as the Mountain View Corridor will play a vital role in serving the area. I-80, SR-201, Bangerter Highway, 5600 West, California Avenue / 1300 South, 6400 West, 700 South, and 4800 West are the existing roads that primarily serve the area. North of I-80 and west of the airport there are few developed roads. A sub-regional transportation plan will need to be created and implemented, as well as other master plans, before the area can be developed. A future extension of the [TRAX](#) line from the airport, as well as a BRT system is expected to serve the area.

Murray - There are still several hundred acres available for development and / or redevelopment in Murray located near the [Intermountain Medical Center](#) at about

5300 South and 200 West. It is still undetermined precisely what type and scale of development will occur in this area over the next 10 or 15 years. Murray's central location and the nearby major transportation facilities make it an attractive location.

Transportation Access- I-15, I-215, 5300 South, State Street, Main Street, TRAX and FrontRunner commuter rail provide the bulk of the access to this site. If these facilities are fully functional, then Murray will have excellent access. Murray will need to develop and implement a good neighborhood traffic circulation master plan to facilitate access to and from the site.

Midvale - Midvale's central location in the Salt Lake Valley, good freeway access, the existing TRAX line, and the Mid-Jordan TRAX line make Midvale an attractive area for future development / redevelopment. There are over 200 acres on the slag site near the former Sharon Steel Plant, (now called Bingham Junction), which have been cleared for development. The site is directly served by the Jordan River Boulevard, an extension of 7200 South, and connects to 7000 South in West Jordan. There is potential to develop this site into a major office park, which could possibly become the center for the state's life sciences industry cluster. There are already potential tenants with solid interest in leasing and / or building over 250,000 square feet of office space.

Transportation Access - The Jordan River Boulevard leads directly to the site. The site is bounded on the east by 700 West (Main Street). I-15 and the I-15 / 7200 South Interchange are close by for easy access to the Midvale site. Other streets that could indirectly provide access to the site are 7800 South, 7000 South and 1300 West in West Jordan. The existing and future TRAX stations are removed from the site by several blocks. One station is just west of State Street on 7800 South. The FrontRunner commuter rail line will be located just east of I-15. Midvale and UTA officials should jointly consider how best to link this site to transit services.

Mid-Jordan Tech Corridor - Located between the New and Old Bingham Highways in West Jordan at about 6000 West are hundreds of acres of vacant land with the potential for a high tech center. Specific plans have not been prepared for this area. A high rate of residential development is occurring in both West Jordan and South Jordan, and complements the site from a jobs / housing balance standpoint.

Transportation Access - The Mid-Jordan TRAX line is currently serving the mid-Jordan Tech Corridor. This

light rail transit line provides this corridor with nearby high capacity transit service. Roadways that will serve the area are the Old Bingham Highway, the New Bingham Highway, 5600 West, 6400 West, 8000 South, and Mountain View Corridor.

Daybreak - This planned community is located in South Jordan City. It is located just west of the Bangerter Highway and the main entrance is located at about 11400 South. There are 300 acres, or more available for new office space and other uses. The area is a master planned development created by [Kennecott Land Company](#). Because it is a planned community, the area presents a special attractiveness, especially to out-of-state people who are more accustomed to this type of development. Master planned communities generally provide prospective customers greater assurance about the type and quality of future development that may emerge around them. The development is using concepts of “[new urbanism](#)” in its layout, design, and architecture.

Transportation Access – Currently, access to the area is provided by the Bangerter Highway, 11400 South, and 11800 South. The Mid-Jordan [TRAX](#) line terminates at Daybreak. The Mountain View Corridor, as well as the TRAX line, will be needed in order for Daybreak to realize its full development potential.

Point of the Mountain Area - This area includes property that is located within Draper and Bluffdale west of I-15. There could be two discrete subareas identified for this area. The first is the [Utah State Prison](#) property (Draper), which is generally bounded by the Bangerter Highway to the north, 14600 South to the south, and the D & RG Railroad line to the west. The other subarea could be called the turf farm property, which is bounded by 14600 South to the north, the proposed Porter Rockwell Blvd. and the D&RG Railroad line to the west. The two areas combined exceed 1000 acres. The Point of the Mountain area is strategically located on the boundary of Salt Lake and Utah Counties. The northern portion of Utah County and southern portion of Salt Lake County, are currently experiencing rapid growth.

The economic importance of the prison property has been validated by [IKEA](#)’s decision to locate at the north end of the area, and Sorenson Development’s announced office development at the southeast end. Preliminary plans for the vacant, state-owned property near the Utah State Prison envision a mixed-use development with two million square feet of office space and major retail, hotel, and residential components. Based on anticipated property values, relocating the State Prison could well become economically viable in the future, thus doubling

the size of the area available for development.

Extensive development of Bluffdale City’s turf farm property is probably a long-term prospect, even though a few office / warehouse type buildings have already been constructed in the area. In any event, there is a considerable amount of land available for development at this location that potentially could generate thousands of jobs.

Transportation Access - I-15 is currently the primary transportation facility providing access to the area. The Bangerter Highway / I-15 and 14600 South / I-15 interchanges provide land access from the Interstate. The West Frontage Road also serves this area. A strong advantage for both of these subareas is the Draper City [FrontRunner](#) commuter rail station. This station located, along with continued area growth, will create the need for an exit from Bangerter Highway. An additional need may emerge for a north / south arterial west of I-15 connecting 14600 South to the IKEA area located north of Bangerter Highway. If the nearby segment of the Bangerter Highway is converted to a freeway, land access will need to be maintained and enhanced. The planning agencies responsible for this area should consider general traffic circulation plans for these locations.

ENERGY ANALYSIS

Highway Operations

The 2015 – 2040 RTP also reduces congestion, vehicle hours of travel (actually delay or “non-travel”), and the corresponding fuel consumption through improved operation of the highway network. By implementing operational improvements, providing new or wider facilities in congested locations, and eliminating “choke point” conditions, the 2015 – 2040 RTP can significantly reduce traffic congestion compared to an unimproved highway network subject to ever increasing traffic demand. Transportation System Management (TSM) strategies to reduce congestion include signal coordination, Intelligent Transportation Systems (ITS), incident management, ramp metering, innovative interchange and intersection configurations (such as single point urban interchanges and continuous flow intersections), and access management.

Quantifying the delay reductions from TSM efforts is difficult due to the diverse nature and application of these strategies and the challenge of isolating the

TABLE 8 - 3**TSM STRATEGY SAVINGS
2015-2040 HIGHWAY OPERATIONS**

MEASURE	AMOUNT
Vehicle Hours Traveled 2040	2,384,000
VHT Reduced from Improved Operations (3%)	71,500
Idling Fuel Consumption Equivalent VMT (assume 2.5 mph)	178,500
Gallons of Fuel*	6,500
*CAFE standard 27.5 mpg for passenger vehicles	

benefits of one particular strategy when all the strategies are employed together. From the assumptions made in the travel model testing of region-wide applications of TSM strategies, an overall reduction of VHT on the order of 3 percent seems reasonable. If these assumptions are valid then a daily VHT reduction of 71,500 is possible from maintaining and increasing applications of TSM strategies in the Wasatch Front Region. This VHT reduction is the equivalent of 90,800 gallons of fuel saved each day. **Table 8-3** summarizes the benefits of TSM strategies in the 2015 – 2040 RTP.

Transit And Non-Motorized Operations

Transportation improvements can help promote economic growth and activity by reducing user operating costs and providing access to employment and retail opportunities. This section discusses the energy savings of the 2015 – 2040 RTP recommended transit projects, and the increase in non-motorized trips (bicycles and walking) that would be encouraged by the activity clusters advocated in the RTP. The 2015 – 2040 RTP includes a variety of transit projects and programs that encourage alternatives to the use of single-occupant automobiles. Public transit alternatives include commuter rail, light rail, bus rapid transit, and local bus service. Rideshare programs and incentives include park and ride lots, freeway HOV lanes, UTA vanpools, and UTA rideshare matching service. Clustered development, or

activity centers advocated in the RTP, encourages more bicycling and walking for short trips.

To estimate the energy impacts of these transit and non-motorized strategies, the WFRC staff compared mode share in 2011 to 2040. Transit trips were assumed to have an average trip length of 8.0 miles, and non-motorized trips (bicycle and walking) were assumed to have a combined average trip length of 1.5 miles. It was also assumed that the average speed of the vehicle trips replaced by transit and non-motorized trips is 35 mph with a fuel consumption rate of 27.5 miles per gallon. The resulting energy savings provided by transit projects and non-motorized trips in the 2015 – 2040 RTP are summarized in the **Table 8-4**.

The 2015 – 2040 RTP transit improvements and non-motorized trips reduce energy consumption in two ways: 1) the number of vehicle trips are reduced, and 2) (to a far lesser degree) the remaining vehicle trips experience less congested conditions, so less time is lost to delay. Using a fuel consumption rate per vehicle of 27.5 miles per gallon, the RTP saves about 86,700 gallons of fuel per day in the year 2040. Fuel economy standards for 2040 may be significantly higher than the current 27.5 mpg and if this is the case, the effective energy savings from transit and non-motorized trips would be diminished.

TABLE 8 - 4**ENERGY SAVINGS 2015-2040
RTP TRANSIT PROJECTS AND NON-MOTORIZED TRIPS**

	VEHICLE TRIPS ELIMINATED	VEHICLE MILES ELIMINATED	GALLONS OF FUEL SAVED
Transit Trips	165,200	1,321,600	48,100
Bicycle & Walking Trips	708,500	1,062,750	38,600
Total	873,700	2,384,350	86,700
*CAFE standard 27.5 mpg for passenger vehicles at 35 mph yields 1.27 gallons per hour			

Fuel Price Impacts

A number of lessons can be learned from the gasoline price spikes of 2008. The average price for a gallon of unleaded gasoline rose from \$2.96 in July 2007 to \$4.09 in July 2008, an increase of 38 percent. At this price, changes in travel behavior became noticeable with a nationwide decrease in annual vehicle miles traveled (VMT) of 3.5 percent ([Dan Brand, "Impacts of Higher Fuel Costs"](#)). Utah experienced similar declines in VMT in 2008 due to the elevated fuel prices. The question is, "What happened to all that VMT?"

Perhaps the most important lesson from the 2008 fuel price spike is that traveler behavior began to change as gasoline prices reached the \$4.00 threshold. But the nature of the changed travel behavior remains a critical question.

In a short term price spike, commuters have limited options. People still need to get to work and other essential activities. Buying a more fuel efficient vehicle may be a sound long-term response to higher fuel prices, but this is not a remedy immediately available to most consumers. National transit statistics for 2008 indicate that only about 5 percent of the reduced VMT diverted to public transit. Locally, the number of passengers using [Utah Transit Authority](#) services increased 12.5 percent from 2007 to 2008. But for 2009 UTA passenger volumes decreased 4.2 percent to volumes very close to 2006 levels. Other possibilities are that travelers reduced discretionary travel, took advantage of flexible work schedules such as four-day work weeks, joined carpools, or they may have opted for telecommuting opportunities. Still others may offset the increased commuting costs with decreases in discretionary spending.

In a study of fuel price elasticity, it was concluded that, "motorists do find ways of economizing on their use of fuel, given time to adjust. Raising fuel prices will therefore be more effective in reducing the quantity of fuel consumed than in reducing the volume of traffic." ([Daniel J. Graham and Stephen Glaister, "The Demand for Automobile Fuel: A Survey of Elasticities," Journal of Transport Economics and Policy, Volume 36, Part 1, January 2002.](#)) But, even small reductions in traffic volumes can produce noticeable improvements in traffic congestion. As noted in the Brand article cited above, peak-period congestion can be relieved to a large degree with only minor reductions in traffic volume.

A related lesson from the fuel price experience of 2008 is the impact this can have on transportation funding. The primary source of highway construction and maintenance

funds is fuel tax. If travelers respond to increased fuel prices with less traveling and less fuel consumption, then the revenues from fuel sales will also be reduced. This is an important consideration as the Wasatch Front faces increased demand for transportation in the future, while current instability in many oil producing areas raises serious questions about the cost and availability of fuel.

QUALITY GROWTH

In May 2005, [Envision Utah](#) issued a publication titled: [Thinking and Acting Regionally in the Greater Wasatch Area: Implications for Local Economic Development Practice](#). Section V of this publication includes a discussion on economic development and quality growth. Much of what follows is derived from this section of the Envision Utah publication.

Over the past several decades, the economic development equation has changed dramatically. Traditionally, the state attempted to lure manufacturing companies by promising a low-cost business environment. Also, tax breaks and access to "cheap labor, cheap land and cheap money" were driving forces. Geographic location was also an important ingredient to the mix of factors. As the nation has changed from an "industrial economy" to an "information economy," the factors that corporate site selectors consider have also changed. With skills at a premium in knowledge-intensive industries such as biotechnology, software and advanced manufacturing, a good location is now considered one that has, and can attract, a critical mass of educated people.

In this modern age, skilled labor is the single most important input for many companies. While the costs of doing business still matter, companies are often more concerned about locating in a region that will be attractive to the highly skilled employees they seek. The [Brookings Institution](#) issued a working paper (Natalie Cohen) wherein a strong correlation is made between education and quality of life issues in the business-location decision. Essentially, "quality of life" has become a key competitive advantage in the fierce competition to recruit and retain firms and talent.

Company location determines how far residents must travel to work, and it influences the form of transportation they use to for commuting. Company location also impacts the character of community growth. A company that locates in a central, downtown facility spawns additional retail and service industry growth,

contributing to a vital town center. In contrast, a company that builds a new facility on vacant land near a highway interchange reinforces a decentralized growth pattern and dependence on automobiles as the exclusive means of employee transportation.

Business location and expansion decisions need to be coordinated with land use, transportation and housing policies in order for the greater Wasatch Front Region to develop in ways that are efficient, equitable, environmentally-sound and attractive. Economic development officials also need to work together to determine which locations across the Region should be developed and / or preserved for future employment sites. Thinking, planning, and acting as a Region will help preserve the high quality of life that residents value. In contrast, unplanned and uncoordinated job site development has the potential to undermine the attractiveness and competitiveness of the entire Wasatch Front Region.

To achieve quality job growth, consideration should be given to the following factors: (1) labor force, (2) land supply, (3) infrastructure, and (4) community amenities. If all other factors are equal, community amenities often make the difference in a business location decision. Thoughtful municipal planning and coordination and steadfast cooperation between public and private actors is necessary to integrate high-impact, quality growth principles into economic development practices on a region-wide scale. Thus, while it is important to think and act regionally in terms of overall business expansion and recruitment, it is also very important to think about how to prepare the Region's communities to be attractive destinations for high-skill, high-wage companies.

TRANSPORTATION IMPACTS

Statistics regarding vehicle hours of delay further quantify the mobility impact of the 2015 – 2040 RTP. Without these projects, total vehicle hours of delay during the evening commute would be over 370,000 hours. With implementation of the 2015 – 2040 RTP, the vehicle hours of delay would decrease by more than a third, totaling about 220,000 hours. **Map 8-5** show congestion levels in 2040 with the implementation of the 2015 – 2040 RTP. Roadways colored red are expected to have significant levels of congestion. Those roadways colored green are expected to have moderate or no congestion. Highway and transit projects in the 2015 – 2040 RTP will improve traffic mobility substantially over not implementing the RTP. However, even with the planned improvement in the

2015 – 2040 RTP there will still be significant roadway congestion especially in Davis County, Weber County, and western Salt Lake County.

In addition to improving traffic mobility, the 2015 – 2040 RTP will provide increased accessibility to transit. Ridership is forecast to increase from 90,000 linked trips per day in 2009 to over 220,000 linked trips in 2040. Approximately five percent of peak period commuter trips are now taken by bus or rail. This figure is forecasted to increase to nearly seven percent if the RTP is fully implemented. Vehicle miles of travel (VMT) per capita is anticipated to increase from 24 per day to 26 per day, or by eight percent. This means that VMT is expected to grow at a rate slightly faster than population. Many of the highway improvements in the 2015 – 2040 RTP allow for more direct (shorter) trips, and transit and other mode improvements reduce the number of vehicle trips. Both system management and demand management strategies (see section 7.8) will also help hold VMT growth to only a slight increase over the rate of expected population growth.

ENVIRONMENTAL IMPACTS

New transportation projects and improvements to existing facilities will address the anticipated needs for greater highway and transit capacity in the Salt Lake and Ogden- Layton Urbanized Areas. However, these projects can have negative environmental impacts as a result of construction and operation. The impacts of the 2015 – 2040 RTP on various aspects of the environment were examined. In particular, the 2040 RTP's impacts on general air quality, noise, water quality, wetlands, water bodies and floodplains, cropland and sensitive species are examined and evaluated. Site specific impacts will need to be investigated in detail as [NEPA](#) (National Environmental Policy Act) principles are applied to the planning processes. Most new construction and transit improvement projects that receive federal funding require, at a minimum, a detailed environment assessment (EA), which outlines the social, economic and environmental impacts of the various project alternatives considered. The approval of a draft and a final EIS (Environmental Impact Statement) are required if environmental and social impacts for a specific transportation project are deemed "significant". This section will provide an overview of the possible environmental impacts from the Planning and Environmental Linkages reports from [uPLAN](#). Project specific impacts can be found in [Appendix P](#), entitled "Planning and Environmental Linkage."